

Monthly

A Reference for Buyers

HUTCHCOCK'S
**MACHINE
TOOL
BLUE BOOK**

25,000

Controlled Circulation

Published By

308 So. DEARBORN ST.
CHICAGO



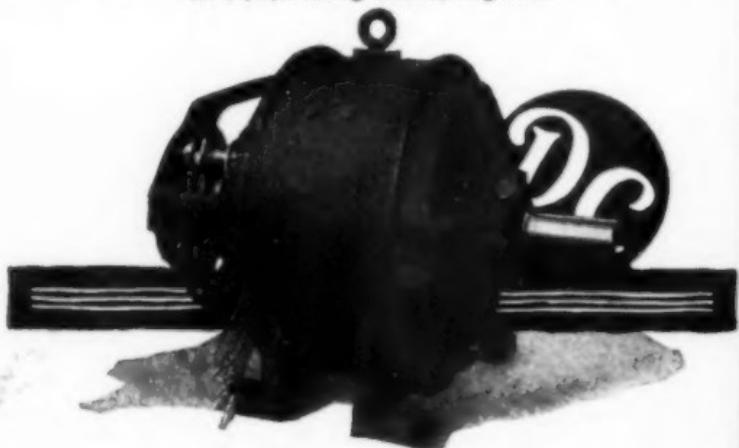
We build both alternating
and direct current motors
with ball bearings, roller
bearings or sleeve bearings.

Reliance Electric & Engineering Co.
1050 Ivanhoe Road, Cleveland, Ohio

Branches:

Boston	New York	Philadelphia	Pittsburgh
Cincinnati	Detroit	Chicago	Birmingham, Ala.

*We specialize in motors, sizes 1/2 to 250 h. p. constant and adjustable speed
D. C.; squirrel cage and slip ring A. C.*





You Ought to Have This Booklet!

At the Atlantic City Convention of the American Railway Association, Mechanical Division, June 11-18, 1924, Cle-Forge High Speed Drills established a new world's drilling record — beating their own record set up in 1923.

This booklet gives a complete summary of the Atlantic City tests and is a valuable guide to the shopman interested in finding out just what high speed drills can and will do.

A copy will be sent you—gladly and without charge—for the asking

The **CLEVELAND**  TWIST DRILL COMPANY CLEVELAND NEW YORK CHICAGO LONDON

TRADE MARK REG. U. S. PAT. OFF. AND FOREIGN COUNTRIES

Manufacturers, also, of

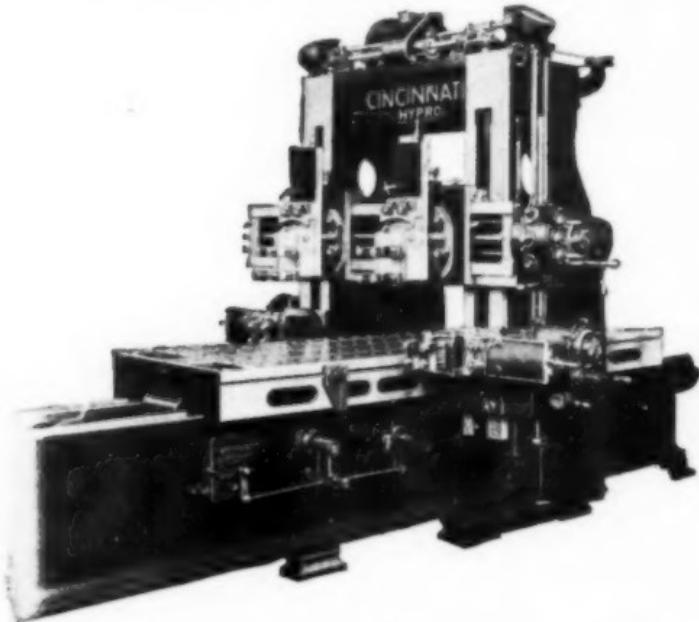
Carbon and High Speed Drills for every purpose; "Mezzo" Super-Carbon Drills; Hand, Jobbers' and Shell Reamers; "Peerless" High Speed Reamers; "Paradox" Adjustable Reamers; "Quick-Set" Reamers; Chucking Reamers for Turret Lathes; Counterbores; Countersinks; Sockets; End Mills; and the "Ezy-Out" Screw Extractors.

CLE-FORGE

TRADE MARK REG. U. S. PAT. OFF.

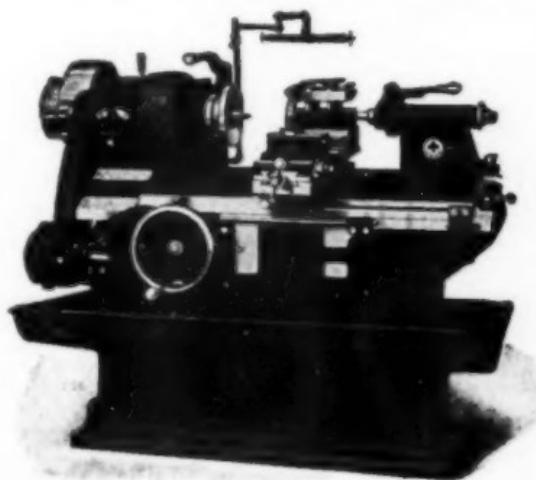
High Production Features

- Selective Dial Feed
- Rail Clamping Device
- Instantaneous Rail Lift
- Rapid Power Traverse
- Forced Lubrication
- Combination Steel
- Herring Bone and Spur Gear Drive
- Long Inverted Dovetail Down-Slide



The Cincinnati Planer Co.
Cincinnati, Ohio

The LeBLOND Multi-Cut Lathe



LeBlond No. 9 Multi-Cut Lathe

The Multi-Cut is a semi-automatic lathe adapted to combined turning and facing cuts using multiple tools. The set-up is very simple and quickly accomplished, there being no cams to consider. The machine can therefore be used profitably on relatively small lots.

*Our complete catalog describes the several sizes in detail.
We will gladly send it to interested parties.*

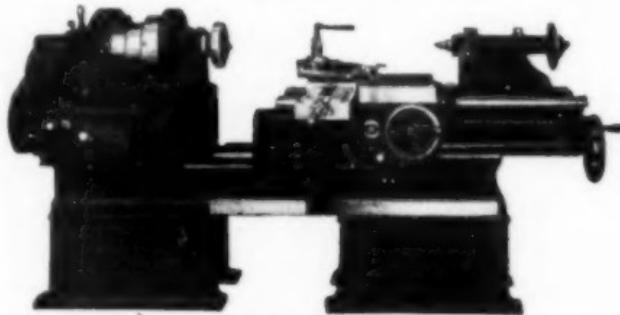
**THE R. K. LeBLOND MACHINE
TOOL COMPANY**

CINCINNATI,

OHIO

Rahn-Larmon 18"/36" Extension Bed Gap Lathe

A lathe of so wide a range that it reduces to a minimum the amount of equipment required, as well as operating time, in jobbing shops, railroad shops, or wherever there is a large variety of work to be done.



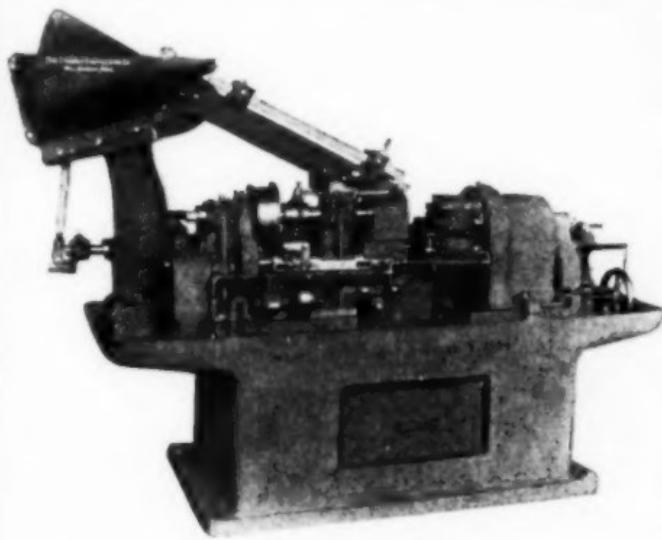
The Lathe with the Wide Range

There is hardly a reasonable limit to the work that can be done on this modern Extension Gap Lathe. It enables the operator at all times to have a lathe ready for any job, without tearing down and setting up.

And not only is it versatile, but it is a real lathe on every job. It is so sturdily constructed that it absorbs the vibrations of the heaviest cuts. And as for convenience—that's its strong point. Arranged for belt or a. c. or d. c. motor drive. Also made in 22"/40" and 28"/50" sizes.

Get in touch with us. Find out what this lathe will do for you and how it saves costs. Glad to go into the matter with you fully, without obligating you in any way.

The Rahn-Larmon Company
Cincinnati, Ohio



"This is Production"

**2800 Pointed and Threaded
1/2" Bolts Per Hour—
One Operator!**

WHEN USING

Four Economy Automatic Combined
Pointing and Threading Machines.

Capacity $\frac{1}{4}'' \times 1''$ to $\frac{3}{4}'' \times 5\frac{1}{2}''$
Bolt and Cap Screws.

**The Economy Engineering Company
WILLOUGHBY, OHIO**

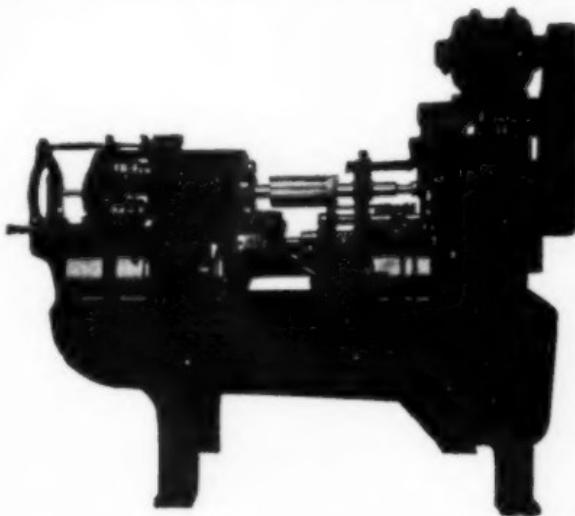
Not Everybody Knows

that Hitchcock's Machine Tool Blue Book reaches more of the big manufacturers throughout the country—manufacturers who are especially interested in production tools—than all the other machine tool publications combined.

Yet such is a fact. And it is a fact that should be in the minds of all those who make production machines, and who want those who use them to know that they make them.

Memories are short. Out of sight, out of mind. And it costs so little to remind all of the larger manufacturers monthly by way of the Blue Book.

You, too, Can Save on Your Bar Stock Parts



If you are interested in producing your bar stock parts at lower costs find out what the Model C, Five Spindle, Acme Automatic Screw Machine can do for you. It's built in 3 sizes:—9/16", 1", 1 5/8".

This new Acme has already saved thousands of dollars for representative concerns making parts from bar stock—and on hundreds of different parts.

Send B/P or Sample for Production Speeds on Your Work.

Address Dept. C. S.

The National Acme Co.
Cleveland, Ohio

New York

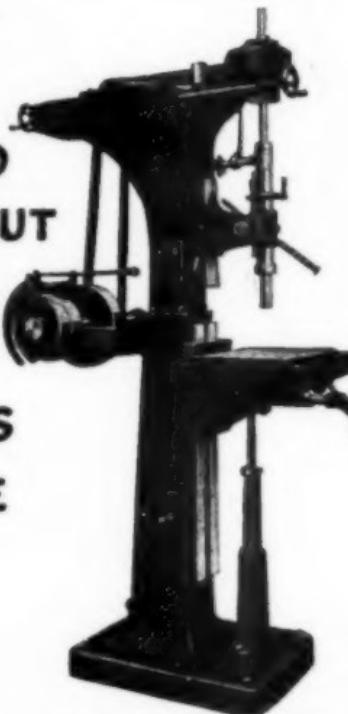
Detroit

Chicago

\$ GET
THE
avey

TO DO
WITHOUT
AN
AVEY
COSTS
MORE

THAN
IT
COSTS
TO
BUY
IT



THE AVEY DRILLING
MACHINE CO.
CINCINNATI
OHIO

FOOTBURT



A Single Spindle Footbur Sipp Sensitive Drill

Made in three
sizes of single
and multiple
spindle models

More holes with this machine

Why? Because you can change speeds in two seconds or belts in ten seconds—because the automatic idlers keep the belt pulling to capacity at all times—because the full ball bearing equipment and accurate machining gives a smooth, fast cut.

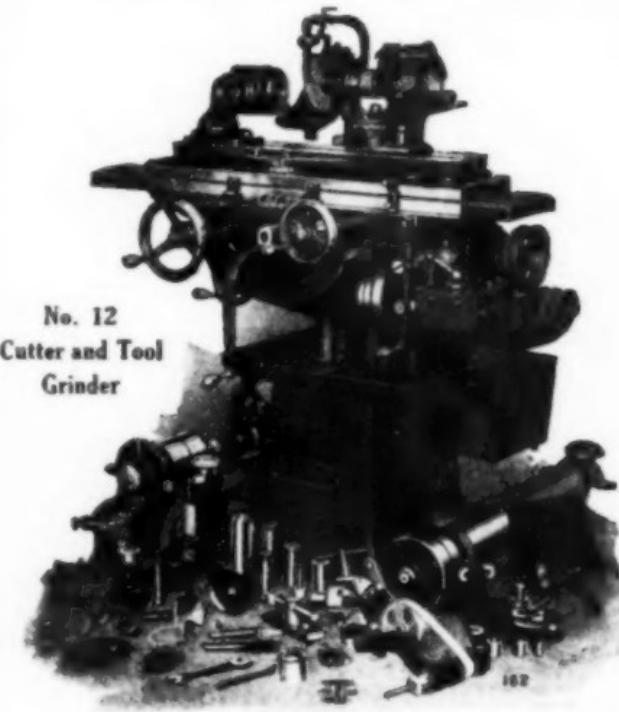
Write for No. 650 Folders

The Foote-Burt Company, Cleveland, O.

FOOTBURT

Cutter and Tool Grinders

For All Classes of Work



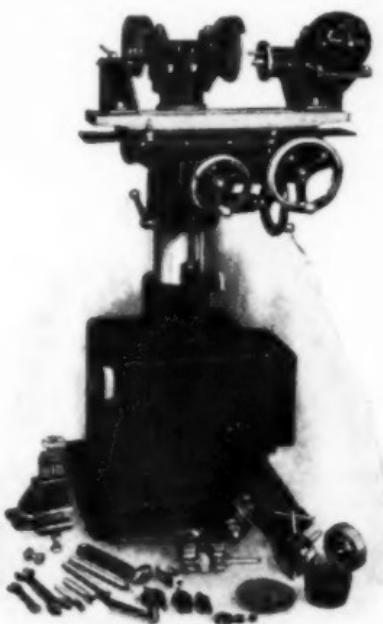
No. 12
Cutter and Tool
Grinder

The Nos. 10, 11 and 12 give a range of sizes that will take care of any kind of cutter and tool work as well as light cylindrical grinding.

Let us recommend the proper sizes for your work

LANDIS TOOL COMPANY
Waynesboro, Pa.

New York Office: 30 Church Street Detroit Office: 5928 Second Blvd.
Chicago Office: 618 W. Washington Blvd.



Motor Driven No. 1 Universal Tool Grinder

Grand Rapids Universal Cutter and Tool Grinder

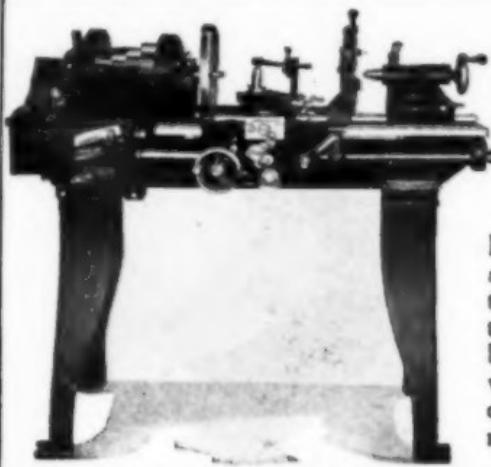
**With Self-Contained Motor Drive,
Eliminating All Overhead Work.**

An ideal machine for the shop using cutters and reamers, for whom our larger machines would be an extravagance.

Any work within the capacity of the machine can be handled with maximum convenience.

BULLETIN ON REQUEST

Gallmeyer & Livingston Company
342 Straight Ave., S. W.
GRAND RAPIDS, MICHIGAN, U. S. A.



Another Sidney Lathe

Our 11" x 4'
Medium Pattern,
all geared head
type. It is up to
the minute with
built-in features
which insure ac-
curacy and eco-
nomical service.

*Write for catalog and prices on the complete
line of Sidney Lathes. Address Dept. 1801*

**The Sidney Machine Tool Co.
Sidney, Ohio**

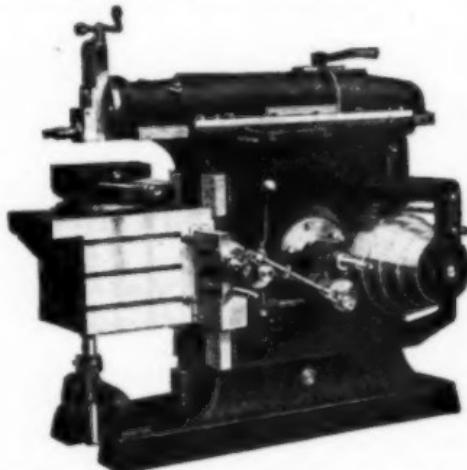


SHAPERS

12", 14", 16"
Plain Crank,
16", 20", 25"
B. G. Crank,
either Cone
Driven or
through Speed
Box.

Belt Shifter
Regular Equipment
All Cone
Driven Shapers.

32" Back Gear-
ed Crank, Sin-
gle Pulley
Drive.



The Smith & Mills Co., Cincinnati, O., U.S.A.



Rhodes Shaper & Slotter

Within the Reach of Every Shop
And Good Enough for the Best



With the essential features of larger machines, it is especially designed for the quick and accurate handling of small work.

There is nothing better for making tools, dies, models, etc., and for all shaping and slotting within the capacities shown above.

Furnished separate in floor and bench type, and in combination in the floor type only, at a purchase price so low that any shop can profitably afford to own it.

*Ask your dealer or write for
CATALOG H22*

The Rhodes Mfg. Company
984 Park Road, :: Hartford, Conn.

SHAPERS—RHODES—SLOTTERS

Cleveland Open Side Planers

26" to 72"

No matter what the Enterprise or Industry, if planing is a problem CLEVELAND OPEN SIDE PLANERS will solve it for you. Their Range, Accuracy and Producing Qualities will save you time and money.

25 years of experience and over 1060 installations.

Self oiling bushings throughout the Drive; all steel Gears; Automatic Trip to Rail Elevating Mechanism; Improved Head Clamp



Send for descriptive circular

The Cleveland Planer Co.,

3148 Superior Avenue,
CLEVELAND, OHIO

Established in 1900

ARMSTRONG COMPLETE LINE OF Ratchet Drills

Packer, for rough service; Standard, for general use; Weston, extra heavy; Universal and Short Ratchet.



*Write
for
our
Ratchet
Drill
Catalog*

The Armstrong Universal

The "Universal," shown above, may be used in awkward corners and confined spaces where other Ratchets are useless. Often pays for itself on a single job. Simplest, strongest, fastest.



Armstrong Bros. Tool Co.

"The Tool Holder People"

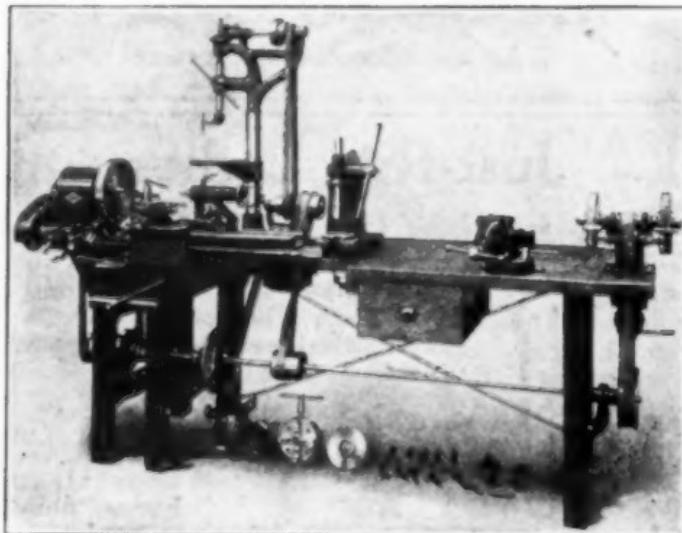
308 N. Francisco Ave., Chicago, U. S. A.

FOR SALE! Complete Shop!

Every item of equipment brand-new!

Complete lay-out for Garage, Repair Shop, Experimental Laboratory, Maintenance Department, Tool Room, or Vocational School.

Equipment consists of 11" Quick-change Lathe, 16" Gap, fitted complete with Chuck, 5 Tools and 4 Lathe-dogs; 10" Drill Press complete with $\frac{1}{2}$ " Chuck; large Arbor Press; Swivel-base Machinists' Vise; and Grinder with fine and coarse wheels. All machines mounted on substantial work bench with hardwood top 7' long, 28" wide. Individual drive through $\frac{1}{2}$ H. P. Motor mounted as shown.



If machines were purchased and installed separately, outfit would cost over \$600. Our price complete, \$488 f.o.b. cars Cincinnati. Weight, crated, 1000 lbs.

Artisan Manufacturing Company
837 West Sixth St., Cincinnati, Ohio.

The name

"Hardinge"

Stamped on any piece of machinery is a guarantee of quality and workmanship. This is particularly noticeable in the manufacture of

Collets

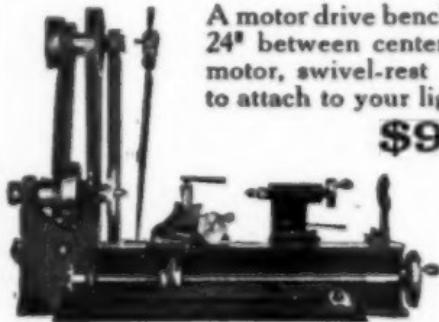
where so often extreme accuracy is required. When you need something special in this line that no other firm will touch, try—

Hardinge Brothers, Inc.
4149 E. Ravenswood Ave., Chicago, Ill.

Collet Specialists for thirty years.

Just-Rite Lathes

Made in Sizes from 10-in. to 20-in.



A motor drive bench lathe, 10" swing,
24" between centers, complete with
motor, swivel-rest and pan, ready
to attach to your light socket.

\$98

JUST-RITE
for turning,
boring, mill-
ing and drill-
ing (not screw
cutting).

Order one by express. Weight, 230 lbs.

A. V. Carroll Machine Tool Co., Norwood,
Cincinnati, O.

Pedrick Lathe Boring Bars



There are many times when you could profitably use one of your lathes for boring—if you only had the proper appliances at hand.

We can equip you for such work with one of our Lathe Boring Bars. They are made in diameters from $2\frac{1}{2}$ " to 6" and various lengths, with a large assortment of cutterheads to meet miscellaneous requirements.

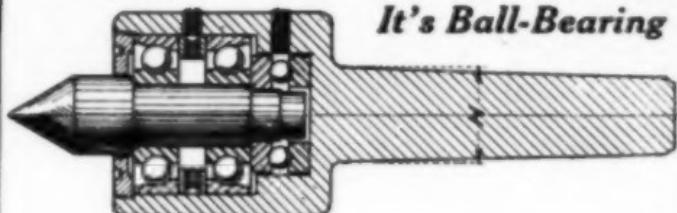
The lathe provides the power, and each bar has a two-change constant feed, hand-controlled or automatic. The bar is rigidly held and is easily taken down and reset without changing the alignment.

Put your boring problems up to us. We have all kinds of new boring machines, from our Standard Portable Cylinder Boring Bar to our new Floor Boring Machines.

Pedrick Tool & Machine Co.

3644 N. Lawrence St., Philadelphia, Pa.

Builders of Portable Cylinder Boring Bars, Crank Pin Turners, Portable Millers, Pipe Benders, etc.



It's Ball-Bearing

The Improved

"ALIVE" Tail Stock Center

Here is the modern way to eliminate tailstock center troubles—burnt centers, enlarged holes, inaccurate work. The Norma Precision Bearings in this tailstock center carry both radial and thrust loads, and maintain accuracy while permitting of the highest speed the tool will stand.

STOCKED IN EIGHT STANDARD SIZES.

Special sizes made to meet special requirements.

Write for Bulletin on Prices and Specifications

Kell Manufacturing Co., 109 Tichenor St.,
NEWARK, N. J.

E-Z THREAD DIAL E-Z

New device
lowers cost
of thread
cutting on
engine lathes.

For all
size lathes.

E-Z to
attach.

Send for
folder.



Eliminates
stopping or
reversing the
lathe.

Saves cost of
backing belt.

Saves power
to drive same.

E-Z to use.

Sent on thirty
days' trial.

JAMES M. COLVEN, 20 Wolffe Street,
Yonkers, N. Y.

Champion Tool Holders

Turning Tools — Boring Tools — Planer Tools
Cutting-Off Tools—Threading Tools
Grooving Tools and the Champion Drill Holder

Patented



The patented under-support and the unbreakable set-screw, with a sturdy construction and the highest quality of material and workmanship, give to CHAMPION Tool Holders a practical excellence that is all their own.

CHAMPION

Tool Holders are made of drop-forged steel, thoroughly case-hardened. The patented protruding under-support, equipped with an unbreakable "Mac-it" set-screw, increases the bearing for the cutter 40 to 70 per cent, with a corresponding increase in cutter economy. It also absorbs the heat from the cutter and permits heavier cuts, with less breakage.

Patented



Champion Boring Tool

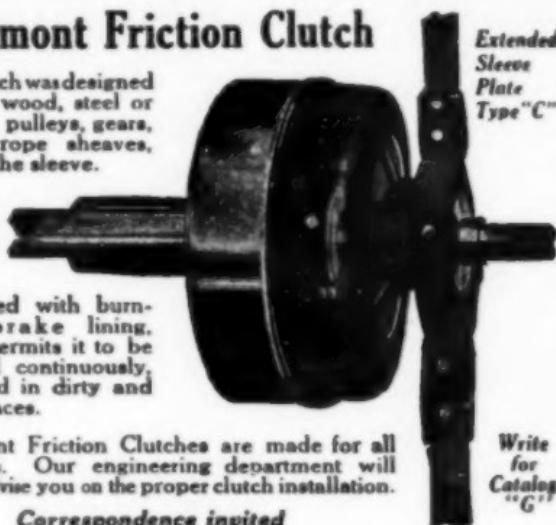
This tool is indispensable for inside threading and boring. Takes any length of cutter, which may be used down to short lengths. Cutters, drills, reamers, taps and many other tools can be used in this Holder.

Write for new Catalog and Price List

The Western Tool & Mfg. Co.
Springfield, Ohio

Edgemont Friction Clutch

This clutch was designed to drive wood, steel or cast iron pulleys, gears, drums, rope sheaves, etc., on the sleeve.



It is lined with burn-proof brake lining, which permits it to be operated continuously, and used in dirty and dusty places.

Edgemont Friction Clutches are made for all purposes. Our engineering department will gladly advise you on the proper clutch installation.

Write
for
Catalog
"G"

Correspondence invited

Edgemont Machine Co., Inc., DAYTON,
OHIO

"The Handiest Racks In The Shop"



You manufacture small articles from round bar stock—on a turret lathe, for instance. Where do you keep the stock? Is it handy? The quick, easy, time-saving way is to have two or three —

"The Handiest Racks"

—filled with bar stock, where you can lean across and pick it up without delay. They save time and space, and keep stock neatly piled and assort'd.

Shipped promptly on trial

Wm. S. Yohe Supply Co.
503 Mahoning Road, N. E., Canton, Ohio

Improved E-Z-Set Boring Tool



Large boring capacity.
Rigid, positive adjustment.
Actuated by worm.
Made in three sizes.
Can't be beat; a trial will prove it.

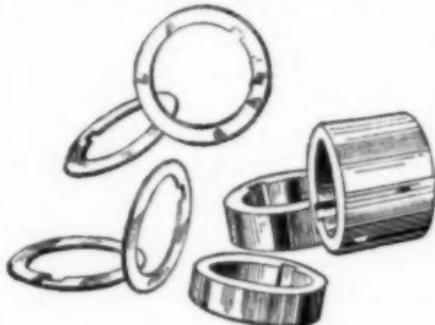
Send for circular

M-P Three Tool Turret



With this Three Tool
Turret, a screw ma-
chine has nothing on
your lathe.

Milling Machine Spacing Washers



Don't

let your men cut
paper washers
for your milling
machines. You
can get steel .003,
.004, .005, .006,
and .010 thick
at \$3.00 per C.

We also make
collars from $\frac{1}{8}$ "
to 3" long.

Necessary Shop Accessories

Manufactured by

The Maxwell Products Co.
Ottawa & Indiana Ave., - Cleveland, Ohio

Keyseats Right On the Spot

No Dismantling—No Fuss



The BURR
Portable
Keyseater

Cuts keyways
up to 12" long,
in shafts up to 5"
diam., anywhere,
in any position.

Have one on
hand for your
next emergency—the cost is often saved on a single job. The
seven sizes are quick and accurate. Hand or power driven.
Over 9,000 in use. *Order yours today and save money!*

JOHN T. BURR & SON
422 Kent Ave., Brooklyn, N. Y.

What More Is There

in a keyseat than having parallel
sides, a uniform width and depth,
and being parallel to the axis of
the bore? This tool mills that
kind of keyseat. It is used in
the drill press.

Don't be bashful—

Ask for Catalog O

National Machine Tool Co.

2268 Spring Grove Ave., Cincinnati, O.



Lower Your Keyseating Costs

With the NEW Catlin No. 1



*Rapid
Simple
Durable
Efficient
Accurate
Economical*

The Catlin Keyseaters are popular because they are profitable—they have made good in machine shops of every size, as well as automobile plants, government shops, navy yards and many foreign factories.

Nos. 0, 1 and 8 Keyseaters have the crank motion, while all other sizes have the rack and pinion drive.

All Catlins are thoroughly efficient, and help to lower shop costs. The picture shows our No. 1 Keyseater.

Let us send you the large folder, which gives full details of construction and operation, and also some

Very Interesting Production Records!

Chattanooga Machinery Company

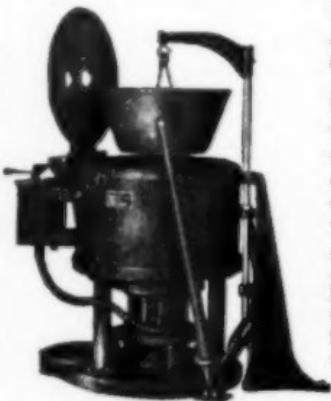
2401 Bennett Ave., CHATTANOOGA, TENN.



TOLHURST Chip
Wringers reclaim
6 to 15 gallons per
load and handle
three or four
loads an hour.

Tolhurst Machine Works
Troy, New York

There's Less Oil to Buy—



No. 250—Cap. $\frac{3}{4}$ Bushel

When you reclaim 90% of the oil
ordinarily carried away on chips
and shavings, with the CURTIS

Centrifugal Oil Extractor

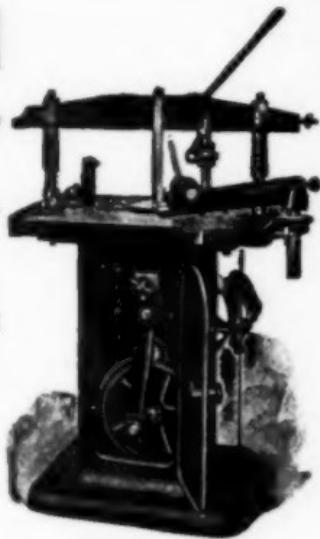
The results amaze those who are
not acquainted with the big
economy of the Curtis.

Two sizes, belt or motor driven.
The illustration shows our smaller
size, with G. E. special motor
on spindle, and with hoist. It
holds about 100 lbs. of chips,
from which the average saving
from 20 installations was 2.17
gallons of oil per load.

*Don't miss this investment
Write for Catalog and prices*

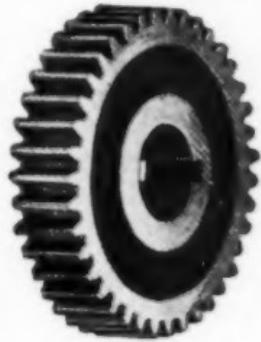
The Leon J. Barrett Co., Worcester,
Successor to Curtis Machine Co. Massachusetts

The Economical Keyseater



The DAVIS is
Built in Two Sizes:
No. 1 and
No. 2

And
The
Job



The Cutter

In sizes from
1/16 to 1-inch

Cuts key-
ways in pul-
leys, gearblanks,
bell cranks, crank
handles, etc.; does
slotting & oil grooving.

Write for folder, with table of cutting times

Davis Keyseater Company
255½ Mill Street, Rochester, N. Y., U. S. A.

Steel Spacing Washers—

Made of a good grade of Cold Rolled Strip Steel, also known as Shim Steel



Stock sizes for arbors of following diameters: $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, 1, $1\frac{1}{2}$, $1\frac{1}{4}$, $1\frac{3}{4}$, $1\frac{1}{2}$, $1\frac{3}{8}$, $1\frac{7}{8}$, $1\frac{3}{4}$, $1\frac{1}{2}$, 2, $2\frac{1}{4}$, $2\frac{1}{2}$, 3, $3\frac{1}{2}$ and 4 in. and larger.

Stock thicknesses: .002, .003, .004, .005, .006, .007, .008, .010, .012, .015, .020, .025, .032, .047, .063, .093 and .125 inch.

Other thicknesses up to 3.000" made to order, with keyways if so ordered.

Ask us to send samples; you'll like them

Detroit Stamping Company
3443 West Fort St., Detroit, Mich.

Save Time Setting Gang Milling Cutters

Eliminate
Thin
Washers

Hardened
and
Ground



PATENTED

"Wear-Ever" Adjustable Spacing Collars permit setting cutters to the thousandth part of an inch without removing from the arbor.

Stock sizes for $\frac{3}{4}$ " to $2\frac{1}{2}$ " arbors, sent on approval
They are adjustable in 12 steps of $2/1000$ inches

SCULLY-JONES & CO. TOOL DIVISION
13th and Robey Streets CHICAGO, ILL.

Ideal for Many Operations



PATENTED

Genesee Adjustable Hollow Mills

SUPERIOR for finishing forgings, castings, etc. They are easily and quickly adjusted to the 1000th of an inch, and are designed to utilize machines to their full capacity. When worn, the blades can be replaced at very small cost.

EASILY FITTED with drills and reamers, have formed blades, etc. The blades can be ground any angle to point work and turn short tapers. They cut up to 15⁰ a minute in steel, are stronger than solid tools, and cannot change in size.

SEVEN SIZES cover all work from $\frac{1}{8}^{\prime\prime}$ to $2^{\prime\prime}$. The Genesee is now made in six styles, from the heavy roughing Style "B" to the accurate finishing Style "F." We also make Style "N" Mills for all Brown & Sharpe automatics. We can make special sizes and styles to your order, at prices that mean real economy.

As all round cost reducers Genesee Mills are a revelation to users everywhere. We invite your correspondence.

Genesee Manufacturing Co., Inc.

Rochester, N. Y., U. S. A.

Manufacturers of Genesee Rapid Production Tools.

Est. 1908

"Bridgebilt" Factory Seating and Tool Racks

A diversified line to meet requirements of every branch of industry.

The Bridgebilt line
will give long and
satisfactory service

For illustrated price list
and discounts write—

**The Chicago Wire
Chair Co.**

619 No. LaSalle St., Chicago, Ill.

No. 1010-SWS



Vanderbeek Universal Joints

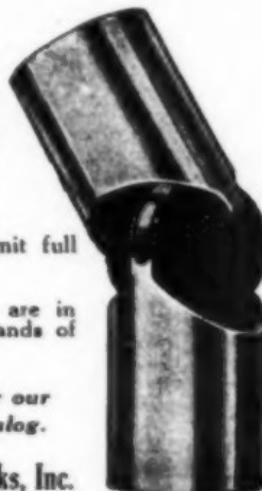


—represent the practical refinements of 25 years experience in manufacturing Universal Joints. All parts are generous sized, fully protected against dirt, and are practically self-oiling. Exceptionally strong, they transmit full power up to 70°.

Vanderbeek Joints are in daily use on thousands of machines.

*Write today for our
Descriptive Catalog.*

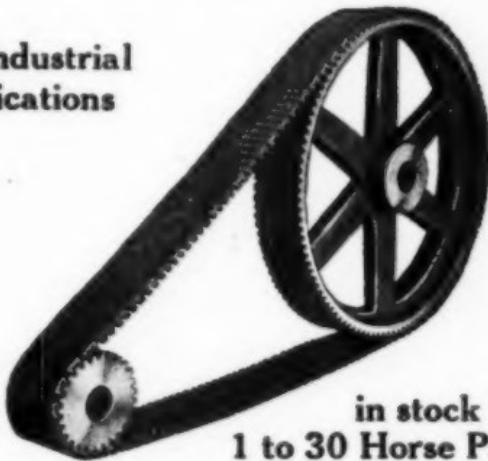
American Tool Works, Inc.
Hartford, Conn., U. S. A.





Standardized Renold-Boston Silent Chain Drives!

for industrial
applications



in stock from
1 to 30 Horse Power

— GET LATEST CATALOG —

BOSTON GEARS

BOSTON GEAR WORKS SALES CO.
Norfolk Downs, Mass.

BOSTON NEW YORK PHILADELPHIA CLEVELAND CHICAGO
Service Stations in Principal Cities

Grinds or Polishes



Belt Grinder



Disc Grinder

MUCH faster and more accurate than a wheel for the flat grinding of metal, fibre, wood, etc. SYRACUSE Disc and Belt Grinders have many uses in every shop. Portable, motor driven from lamp socket, they save steps and extra handling.

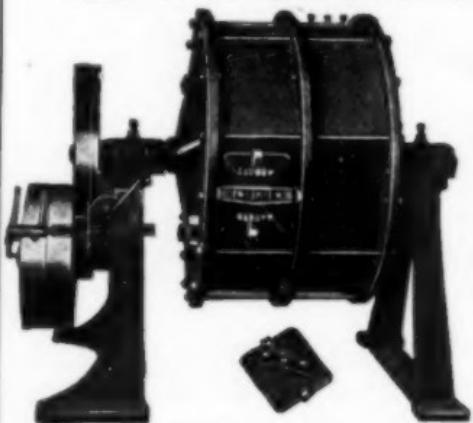
Write for bulletin

PORTER-CABLE

**MACHINE
COMPANY**

Salina St., Syracuse, N. Y.

Abbott Burnishing Barrel And Carbonized Steel Ball Process



**Let us
burnish**

samples of your
small metal
parts, and fur-
nish time and
cost estimates.

Quality is high,
and cost is bed-
rock.

*Send us
your samples*

THE ABBOTT BALL COMPANY
Elmwood District, Hartford, Conn.



PEERLESS SURFACING MACHINES

for
Grinding and
Finishing
FLAT PARTS

Take
a
rapid
cut
and
leave
a
perfect,
straight-
grained
finish

Also made in horizontal models. Write for large folder.

PEERLESS SURFACING MACHINE CO., Inc.
TROY, N. Y.

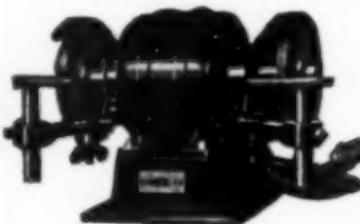
In Canada: A. R. WILLIAMS MACHINERY CO., Toronto

Competition—

Makes Efficient Tools a Necessity

—and the—

Sharpest Tools are the Most Efficient



THE BODINE Portable Electric TOOL GRINDER

Is the one machine which has correctly solved the problem of keeping tools sharp.

THE BODINE isn't "just a grinder." It is a highly specialized tool for increasing profits by increasing production. It makes it so easy to keep the cutting edges of tools at maximum efficiency.

Write for a copy of "*Eight Outstanding Advantages.*"

The Bodine Electric Company
2256 West Ohio St., Chicago, Ill.

"D & W" Demagnetizers



Simple and
Dependable

Built in
two separate
types, for use
on alternating
or direct
current



Their construction is unique. A rigid continuous "U" shaped core made of the highest grade laminated electrical steel is energized by two stationary coils, thru which alternating current is passed. Construction is similar for d. c. machine, only in addition it contains a small converter. Write for the circular.

J. & H. Electric Co.,

161 Clifford St.,
Providence, R. I.

Don't Forget This

Precision Truing Tools

will cut down your cost of
truing grinding wheels.

The wheel is trued more quickly—the wheel pores are opened up better, hence will grind more pieces before requiring truing again.

THE SAVING IS ALL PROFIT TO YOU

WHEELS

Our truing wheels are especially made for truing and are superior for this work.

We also make small grinding wheels, 6-inch diameter and less.

The Precision Truing Machine & Tool Co.
CINCINNATI, OHIO

SIMPLEX-M Abrasive Band Grinders



**For Roughing, Smoothing and
Fine Finishing**

Produces Straight Grain
Surface and Sharp Edges

Used on Metals,
Woods and Compositions

Send for literature of various styles and sizes

Walls Sales Corp., 96 Warren St., N. Y.



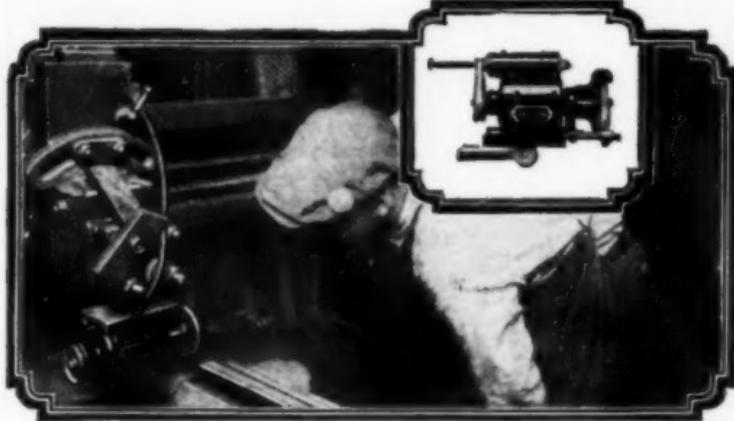
Strand Rotary Files

Used with Strand
Flexible Shaft
Machines. Are
giving excellent
service.

Write for Catalog
N. A. Strand & Co.
5001 No. Lincoln St.
CHICAGO

HIGH SPEED HAND CUT ROTARY FILES





Helping Willys-Overland Take America Off Its Feet

IN THE Willys-Overland plant at Toledo, Dumore grinders play an important part. How well they fulfill every demand made of them—how accurate and adaptable they are for all varieties of grinding work, is convincingly illustrated in the hood panel forming—die grinding job pictured above. And when you consider that this is but one of many difficult operations successfully handled by Dumore grinders at the Willys-Overland works, you'll agree that these efficient tools assist materially in "taking America off its feet."

It is reasonable to assume that what Dumore grinders can do for Willys-Overland they can do for any other manufacturer. Six distinct styles of Dumore grinders, each with individual speed ranges, provide a grinder with the correct cutting speed for any grinding need. Dynamically balanced armatures and selected ball bearings in Dumore grinder motors eliminate vibration—permitting maintenance of grinding limits as close as .0001, without taper, bell-mouth or chatter marks. Operating on alternating or direct current, they are especially useful in shops supplied with two varieties of power current. Portable, they save the cost of tearing down expensive set-ups.

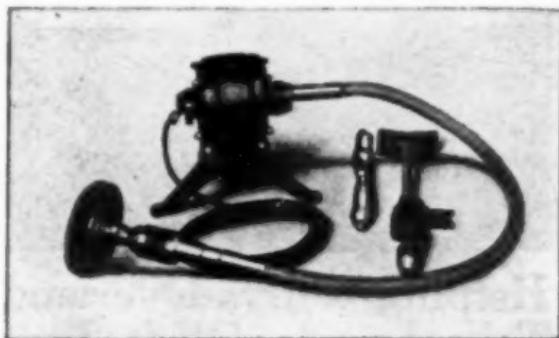
Why not find out what they can do for you? Our new catalog tells an interesting story of Dumore grinders and their uses. By asking for it today you'll get it quicker than by delaying until tomorrow. Write now!

Wisconsin Electric Co., 43 Sixteenth St., Racine, Wis.

DUMORE HIGH SPEED GRINDERS

The Whirlwind Buffer and Grinder

Will cut the cost on any unhandy
grinding or polishing job



Send for our latest bulletin

Stow Flexible Shaft Co., 3454 Ludlow St.,
Philadelphia, Pa.
The Best Since 1876

Thompson Universal Grinder

Self-contained and motor driven,
this improved Grinder combines
efficient means for the rapid and
accurate production of every grind-
ing operation required in a
machine shop.

Capacity 10" x 36"

*Write for
Illustrated
Folder*

**The Thompson
Grinder Co.**
Springfield, Ohio



La Salle Grinders

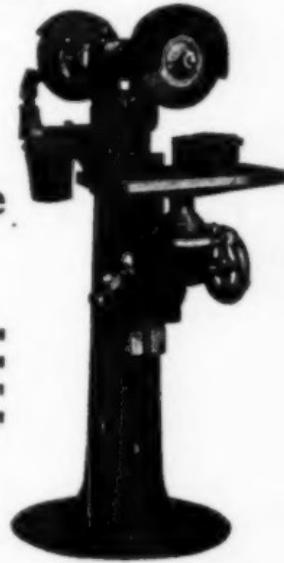
American Style C T A
For Dry Grinding Only



Unexcelled as a dry grinder for twist drills.
Extra large drill holder has capacity from
1" to 3½".

American Style W T A is arranged for both
wet and dry grinding.

All American Grinders are now equipped to
handle taper shank drills.



No. 1 Plain and Surface Grinder

(Micrometer Adjustment)

Grinding wheels.....	8"x1"
Between wheels.....	15"
Height to spindle center.....	40"
Table surface.....	8"x14"

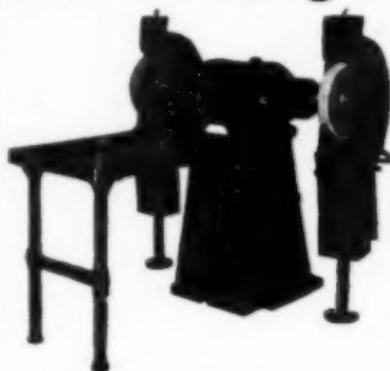
Has vertical travel of 12" on guides,
¾" by micrometer, and may be raised
to within 2" of spindle center. Wheel
grinds to center of a surface 9" wide.

Let us know your grinding requirements

LaSalle Tool Company
LaSalle, Illinois, U. S. A.

CISCO Polishing, Buffing and Grinding Lathe

For large production



Direct motor driven, self-contained and ball bearing. Vital parts protected from dust and dirt. Push button control, quick-acting brake, a cool motor with frequency changer, perfect oiling and entire absence of vibration are important factors in turning out large quantities of work.

*Write for
full description*

The Cisco Machine Tool Company
1700 Elmore St., Cincinnati, Ohio

FEDERAL DIAL COMPARATOR

-CAPACITY 6'-



With Indicator
Graduated .001"

\$33.50

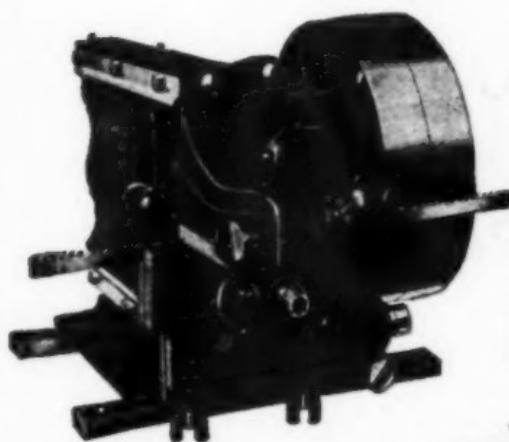
With Indicator
Graduated .0001"

\$48.50

SEND FOR COMPLETE CATALOG

Federal Products Corporation
Elbow & Chestnut Sts., Providence, R. I.

A SHARP SAW for 5¢



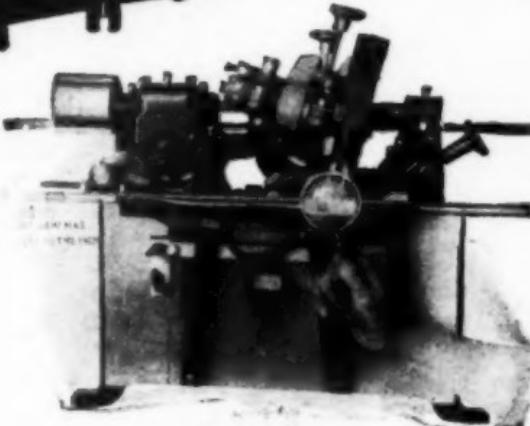
Model K-2

**IN ONE
OPERATION**

Files and Sets
Medium, Spring
or
Soft Tempered
BAND SAWS

Fisher Body ... have... 28
Simonds Saw ... have... 22
Gen'l Electric ... have... 23

Model A-2
Sharpens and
Salvages
HARD
Medium
or Soft
Tempered
**BAND
SAWS**



THAT IS WHY

20 concerns each have over 15 of these machines

**CAN YOU SHARPEN A SAW
FOR 5 CENTS? THESE MACHINES WILL**

THE WARDWELL MFG. CO.

Specialty Manufacturers of the largest line of Saw Filers made in the U. S. A.
108 Hamilton Ave., Cleveland, Ohio

Towsley Trucks PAY 500%

Every Year On
Their Cost Price



Glad to tell
you how
TOWSLEY
TRUCKS

repay their
cost every
two to three
months.

Every style
for every
need.

Write for facts and figures; you'll be glad you did

John T. Towsley Mfg. Co., Cincinnati,
Ohio

Giant "CanTon" Carries Three Tons



The "CanTon" Portable
Crane, Hoist and Truck
makes it easy for one
man to handle machin-
ery and castings which
ordinarily require the
combined efforts of 6
to 10 men. 'Nuff sed.

There are several sizes,
but any one of them
will soon earn its cost.
Just drop us a line and

Ask for Bulletin E-8

CANTON FOUNDRY & MACHINE CO., Canton, Ohio

New York Office: 203 East 15th Street, Second Floor

TRIBLOC CHAIN HOISTS



Good tools for better work

Making the worker's job more agreeable shows a favorable result on production cost sheets.

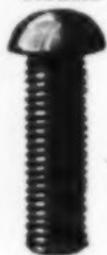
Get this result in your shop by transferring the costly drudgery of load lifting to sturdy Tribloc Chain Hoists. Proper load lifting devices keep your mechanics at the job they're paid to do.

We will gladly tell you how Triblocs can be used to advantage in your shop—making more profitable the effort of hard-to-get mechanics.

Send for Catalog 7-B

Ford Chain Block Co.
2nd and Diamond Sts.,
Philadelphia, Pa.

Round



Oval



Economy Screws

The "Economy" are real economy screws, because it always pays to use the best. Carefully made of superior material, with heads free from burrs, they are especially suitable for use in screw machines.

Can ship promptly all standard sizes, iron or brass, with four styles of heads. If you cannot get "Economy" Screws from your jobber, write us, giving nearest jobber's name and address.

Flat



Fillister



Economy Screw Corp'n
5213 Ravenswood Ave., Chicago, Ill.

*How would
you like—*

to tap small holes as easily as you drill them; to tap them 2 or 3 times faster than usual; to wear out the small taps you are now breaking?

The Etco High Speed Tapping Attachment usually increases output 100%. When a gun tap is used the increase is as high as 300%.

*Try one for 10 days—
if you can then spare
it, send it back.*

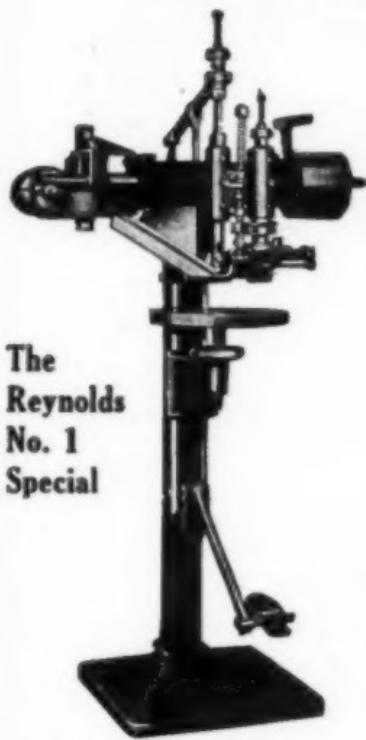
Etco

Try one
for 10
days



Eastern Tube & Tool Co.
600 Johanson Ave., Brooklyn, N.Y.

For Driving Short Screws At Lowest Cost



The
Reynolds
No. 1
Special

The Only
Automatic
Magazine-Fed
Machine

That drives short
screws and those
with short bodies
and large heads

Just keep the hopper
filled—no handling of
screws beyond that
—a boy or girl can
operate it.

For a dozen years our Automatic MAGAZINE-FED Machines have been driving nearly every kind of screws for up-to-date concerns everywhere, at a saving of 65% to 85%.

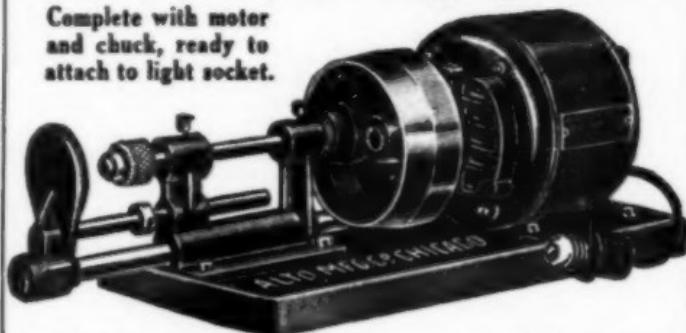
Our No. 1 Special, shown in the picture, which has been in use in many plants for over three years, completes our line of MAGAZINE-FED Machines, by handling screws with short bodies and large heads. It magazines and drives screws from No. 4 to No. 10, up to $\frac{1}{2}$ " long, to the center of a 14" circle.

*Send us samples of your assemblies containing screws and we will
recommend the proper equipment to meet your requirements*

The Reynolds Machine Company
Dept. H. H., Massillon, Ohio

No. 1 ALTO Motor Driven, High Speed Tapping Machine

Complete with motor and chuck, ready to attach to light socket.



This efficient high speed tapping machine, with three times faster reverse, is just what you want. It is thoroughly well built, but so simple and compact in construction that we can offer it at a low price. Capacity, $\frac{3}{16}$ " in brass, $\frac{1}{8}$ " in steel. We also make larger motor driven Tapping Machines.

Write for descriptive Circular and prices

**The Alto Mfg. Co., 1647-51 Wolfram St.
Chicago, Ill.**

POWELL BLOW GUN

Designed to dispense AIR with utmost economy

Used for cleaning machines, machine tools and work benches



Made with different tips for special requirements.

Circular on request

The Wm. Powell Co.

2525 Spring Grove Ave.,

Cincinnati, O.

Ettco

New All Hardened Drill Chuck



To keep pace with the demands for Increased Production and Lower Maintenance Costs, Ettco Drill Chucks are now being made with All Hardened Steel Parts. They are stronger and better.

1. *Lighter in Weight.*
2. *All Hardened Parts.*
3. *Keyless.*
4. *Hand Operated.*
5. *Ball Bearing.*
6. *Continuous Grip.*
7. *Simple Construction.*

Seven good reasons for using the new Ettco.

Cash in on your old Drill Chucks. Send them to us and we will allow 15% on the exchange from the following list prices:

No. 1A	Ettco— 0 to $\frac{1}{4}$ in.....	\$ 5.50
No. 2	Ettco— 0 to $\frac{3}{8}$ in.....	6.50
No. 3A	Ettco— 0 to $\frac{1}{2}$ in.....	9.00
No. 3½A	Ettco— $\frac{1}{8}$ to $\frac{5}{8}$ in.....	11.00

Ettco Chucks increase the value of electric drills

Eastern Tube & Tool Company
600 Johnson Ave., Brooklyn, N. Y.



"Titan" Positive Drive Quick Change Drill Chuck

THE "TITAN" has the good features of other drill chucks, plus two special features, which make it the perfect chuck:

- (1) **Quick Change:** Simply strike the end of drill, and out it comes. No hammer or special device required. A one-armed man can do it.
- (2) **The Broken Tang Collet:** is as positive a drive for broken tang drills as though they had never been broken. The saving is obvious.

*The "Titan" saves time and costs
Write for descriptive price list*

Titan Tool Company
Erie, Penna.

Sigourney Sensitive Drills

Plain or Ball Bearing
Belt or Motor Drive

WE MANUFACTURE sensitive drills exclusively. They are built for service, and in quality are unsurpassed.

SIGOURNEY DRILLS are made with one to four spindles. The illustration shows our one-spindle ball bearing drill. It has vertical adjusting head, adjustable table, three speeds, runs true and is very sensitive. *All parts are interchangeable.* Shipped belted ready for use.

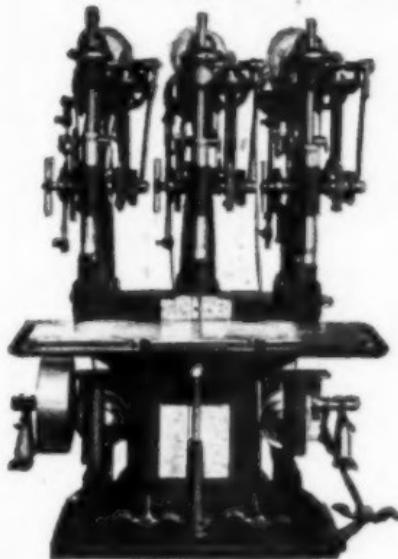
Write for circulars and prices



Sigourney Tool Co.
Hartford, Conn., U. S. A.

Rockford Cuts Drilling Costs

In Big Plants and Small Ones



The Rockford Automatic Gang Drilling Machine

"—superior in convenience, capacity and workmanship, a top-notcher"

Are You Responsible for Results? Then you owe it to both yourself and your shop to investigate the merits of the Rockford. Among its many successes are the records established in auto plants and agricultural implement shops—places where economy rules.

Automatic Return—When each spindle has completed its operation it automatically returns to its highest position, where it remains until the starting lever is tripped, when it immediately drops to position above the work.

By Removal of the stop pin in the cam, the spindle will immediately return to lowest position above work, and when tripped by automatic stop, will return to highest position and immediately drop again to work, repeating the movement automatically until the power is shut off. The spindle can be pulled ahead of the feed while in operation, a great advantage in drilling through a cored piece, piping or similar work.

Built with 2, 3, 4 and 6 Spindles—Box Column Type

Write us for Folder. Glad to answer your questions

Rockford Drilling Machine Co.

Rockford, Illinois

The Muehlmatt Quality Sensitive Drill

If you are satisfied with any old kind of a drill because it's cheap, you don't want the "Muehlmatt".

The "Muehlmatt" is a highly specialized quality tool, combining extreme sensitiveness with minute precision.

On production work the "Muehlmatt" usually increases output 25 to 100 per cent, and has the sensitive "feel" necessary for drilling holes down to .010" diameter.

Users like it. Over half of our business is repeat orders. Let us tell you what they say about it and mail you full description.

Quality
Sensitive

Size No. 1

Also
two
larger
models



Adolph Muehlmatt
434 Elm Street, Cincinnati, Ohio

Winterhoff Tool and Disc Grinders

No. 2 Combination Grinder and Disc Grinder

DRILLS
GRINDERS
DISC GRINDERS
SAWS
SANDERS
All Motor
Driven

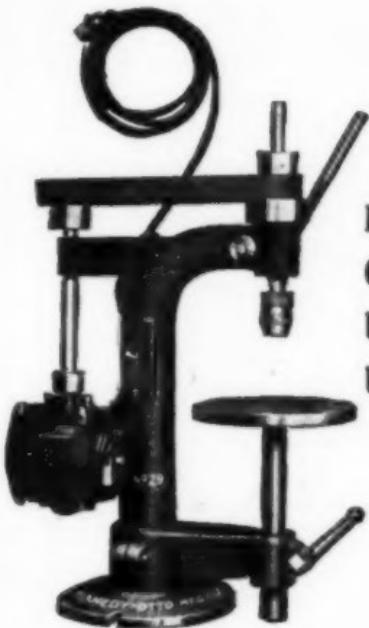


Price
\$45
F. O. B. Elkhart

An ideal tool for the tool room for finishing die blocks or any flat surface discing. Equipped with 6" by $\frac{1}{2}$ " tool grinding wheel, wheel guard and tool rest, 8" disc wheel, tilting table and protractor guide, $\frac{1}{4}$ h. p. motor 1750 r. p. m. Also made in Plain Grinder model at **\$35.**

Send for circulars describing these machines or see your dealer

Winterhoff Tool & Machine Co., 109 South Elkhart Ave.,
ELKHART, IND., U.S.A.



Drills to the center of a 10" circle.
Capacity, $\frac{3}{8}$ " diameter.
Up and down run of spindle, $2\frac{1}{2}$ ".
Up and down run of table, 7".

Another Original Canedy-Otto Feature

That of first offering an electric bench drill completely equipped and ready for the job, the improved design eliminating the use of all gears and placing the cone pulley in exact alignment, enabling the belt to be run at its maximum speed.

It also eliminates all twists and turns of the belt, meaning both a saving of belts and time, giving a greater speed of spindle, a feature of great advantage when using drill for small diameter.

Regular equipment consists of vertical type ball-bearing motor, toggle type switch, extension cord, socket, belting and chuck.

Canedy-Otto Manufacturing Company

Main Offices and Factory—Chicago Heights, Illinois

New York Branch
407 Broome St.

Complete stock
carried at branches

San Francisco Branch
955 Folsom St.

ORDER ONE ON 30 DAYS' TRIAL.

THE G-S COMBINATION VISE

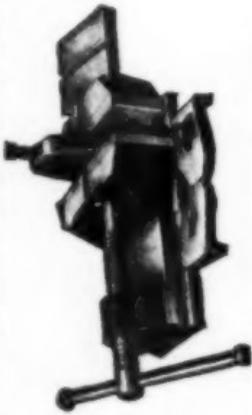
3

Tools for the Cost of

1

**VICE, V-BLOCKS
AND ANGLE PLATE**

The most practical Vise for
general Machine Shop use



A GREAT TIME AND LABOR SAVER

For holding work in Drill Press,
Milling Machine, Shaper or Planer.

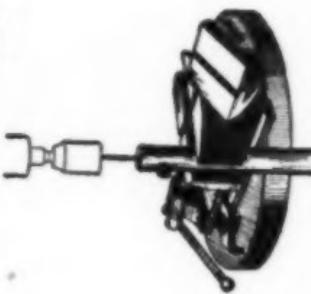
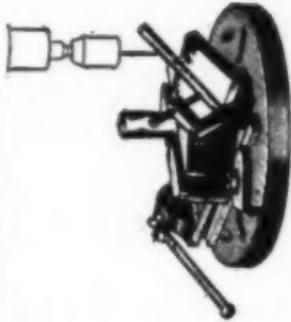
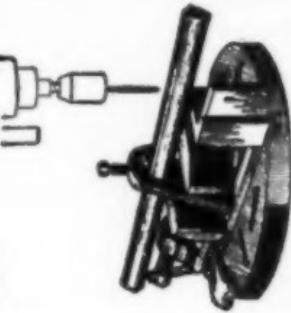
PATENTED

No. 1 Dimensions
No. 2 Dimensions
Jaws Open.....
2½-in. 1½-in.
3-in. 2½-in.
4½-in. 3½-in.
6½-in. 4½-in.
Weight.....
135-lb. 160-lb.

No. 3 Dimensions
Jaws Open.....
2½-in. 1½-in.
3-in. 2½-in.
4½-in. 3½-in.
6½-in. 4½-in.
Weight.....
135-lb. 160-lb.

PRICES
\$13.00 Complete Vice
F. O. B. Factory

A few of the Many ways the G-S COMBINATION VISE can be used



Work is held in V's with the aid of special
clamps—quick to set up and remove—no
blocks, straps or bolts are necessary.

Bush held on the saddle plate for drilling
holes at any degree. Also short shaft held
in the V in vise. This converts Vise to a
boring jig for duplicate parts.

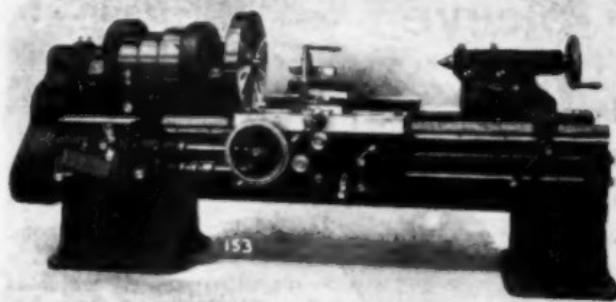
Long shaft can be held in the overhang-
ing jaws. Here the V serves as a jig for
centering shafts, etc.

Germanow-Simon Machine Co.
547 West Avenue

Rochester, New York

New York

CINCINNATI LATHES



are supplied complete to do your particular jobs most economically with standard or if necessary special tools and fixtures. Our experience of over 20 years specialization always at your service. Send us blue prints of your work for estimates. If you prefer to avoid repair bills and obtain guaranteed service, our catalog and prices will interest you. Sizes 16" to 30" Cone Type or Geared Head, belt or motor drive.

THE CINCINNATI LATHE & TOOL CO.
3207-3211 North St., Oakley, Cincinnati, O.

Monarch Jr. Lathes



11" x 3"
Quick Change
Oil Pan

\$317.

are the smallest members of the Monarch lathe family. Yet they are the "biggest little lathes" built.

The Monarch line of lathes includes all sizes and types from the little 9-inch Junior lathe to the big, massive 30-in. lathe. In this line there is a lathe to fill your requirements at the price you want to pay.

Send for Catalog

The Monarch Machine Tool Co.
206 Oak Street, Sidney, Ohio

The "Utility" Sleeve

A Detachable
Taper Shank
for
Straight
Shank
Tools



Cuts
Small
Tool Costs

Insert a straight shank drill or reamer in this Sleeve, and it works as efficiently as a solid taper shank tool.

Only the straight shank tool of high speed steel is discarded when worn or broken—not the entire taper shank tool. Cuts tool costs, saves time, increases output.

Write for "Utility Tools" Catalog

The J. C. Glenzer Company
6469 Epworth Blvd., DETROIT, MICH.



Multiple Drilling
In ANY PATTERN
On a Single Spindle

You can do so much more work and cut down your drilling costs with an up-to-date

**U. S. Multiple Spindle
Drill Head**

Made regularly with 2 to 6 adjustable spindles. Special Heads made to your order, with adjustable or fixed spindles.

*Let us help you make
a worth-while saving*

The United States Drill Head Co., 1952 W. Sixth St., CINCINNATI, O.

Michigan Agents—National Sales Engineering Corp., Detroit, Mich.

14" Sensitive Drill

Accurate—Convenient

You will find the U. S. a reliable, rigid tool for the rapid and economical drilling of holes $\frac{1}{2}$ " and smaller.

Price with motor, switch and belts - **\$115**

Or with Counter-shaft for Belt Drive **\$70**

Built in a machine tool shop, according to the best engineering practices. Steel spindle, ground to size, with ball thrust bearing; vertical adjustment to head; tables for long and short work; three speeds. Further details upon request.

The U. S. Machine Tool Co.
1952 W. 6th St., Cincinnati, Ohio



Thor

Electric Drills —

*Push the Button
and It's Ready*



Men who use a THOR Portable Electric Drill tell us that it is exceptionally easy to operate and control. The easy operating push button switch enables the operator to start or stop at will.

The handle is comfortable and gives positive control over the drill.

THOR Drills are built of easy running, rugged parts that insure durability and economy. Jacobs Chucks, ball and roller bearings, double-silk wound coils, and other high grade parts are standard equipment.

All THOR Electric Drills have a ground wire—an exclusive safety feature. Shocks are impossible!

Independent Pneumatic Tool Co.
600 W. Jackson Blvd., Chicago, Ill.



When a Tap Breaks —that's plenty!

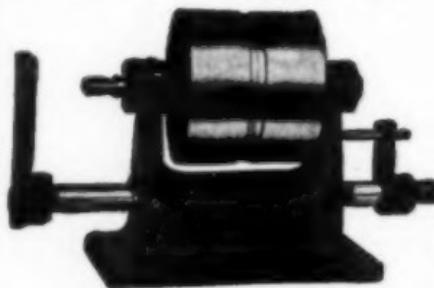
Your Loss Should Stop right there—and it will—if you have a Walton Tap Extractor on hand to extricate the remains.

You simply give it one or two twists, and the piece is out—no loss of time, no damage to the work. Sizes No. 8 to 1½". Shipped on approval.

*Let's have your order Now—
so you can get acquainted*

The Walton Company
Hartford, Conn.

Burke Tapping Machines



are
**Efficient
Inexpensive
Production
Machines**

Automobile manufacturing plants, with their large force of efficient men, who are continually endeavoring to

lower the cost of production, are always buying machinery that will increase production and lower their costs to a minimum. It is the general opinion that automobile manufacturers have the best equipped plants in America.

Several automobile manufacturers are equipped with Burke Tapping Machines and we are continually receiving orders for additional equipment.

The Burke Machine Tool Co.
297 East 16th Street, Conneaut, Ohio

**Dependable Service on
Hollow Bored Forgings
and Steel Shafts**



If you make machines on which you use *Lathe Spindles*, *Piston Rods*, *Rams*, *Clutch Shafts*, or similar parts, let us quote on your requirements. Our products are right, our prices are right, and our service is dependable.

Send along your blueprints; we'll both be pleased with a trial order

**American Hollow Boring Co.
Erie, Penna.**

Adjustable Threading Dies FOR BOLTS AND RODS

Requiring no reversing to remove them.
Also adjustable centering jaws in the new pattern



"DUPLEX" Die Stock Set

Each cutting edge on separate flat piece makes
sharpening easy. Wide adjustment.

THE HART MFG. CO., 2319 E. 20th St., CLEVELAND, O.

Faster and Better Riveting

On a NOISELESS Machine

Speed: A rivet a second.



Quality: The heads are perfectly formed and highly polished, without hammer or tool marks. Simple adjustments give whatever degree of tightness or flexibility is desired.

Noiseless: The "GRANT" rolls or wedges the rivet shank. There are no blows. Therefore, it makes no nerve-racking noise.

*Write for Catalog and send us some of
your most difficult work for riveting*

The Grant Mfg. & Machine Co.
C. E. Station, Bridgeport, Conn.

No Smoke

No Fumes



Non-Poisonous

Non-Inflammable

Non-Explosive

KASENIT No. 1
For Fine Work and
Very Rapid
Hardening

Sold in $\frac{1}{2}$ lb., 1 lb.,
3 lb., 5 lb. and
10 lb. tins

KASENIT No. 2
For General
Hardening

Sold in 25 lb. and
50 lb. kegs

Write for Booklet "C" on hardening. Ask your dealer or write—

KASENIT COMPANY, 2 & 4 Stone Street,
NEW YORK, N.Y.

3 outstanding reasons

DANLY Die Sets

are standard with 3,000 nationally known concerns.

- 1 *Convenience*—Order by type and number from the 34-page catalogue; eliminates all bother, delay and routine.
- 2 *Saving in first cost*—ranging from 20 to 50% and sometimes more. Costly overhead for castings, patterns and storage space is eliminated.
- 3 *Economies in use*—Shearing of dies is eliminated, "set-up" time is reduced enormously, mounting of dies becomes a simple process, the "pieces per grind" are increased enormously, production is speeded up and stampings are more accurate.

You would not think of making your own monkey wrenches or twist drills. So why continue to make your die sets when you can buy them so much cheaper and more conveniently from Danly?

*Write, wire or phone nearest warehouse
for 34-page catalogue*

Danly Machine Specialties, Inc.

4913 Lincoln Ave., Chicago, Ill.

Detroit, Mich.
1537 Temple Ave.



Long Island City, N. Y.
35 Wilbur Ave.

For Sure Balance--

an absolutely level and solid "Way" is necessary

Bowsher "Balancing Ways"



are brought to an absolute *level* in ten seconds.
No revolving parts.

The edges or "knives" upon which the work is tested are ground *true*, and are mounted upon the planed "ways" of a heavy bed or frame.

Standards adjustable to suit length of arbor.

Three sizes for floor—one for bench use

Send for Catalog "F"

The N. P. Bowsher Co., South Bend, Ind.

Anderson IMPROVED Ever-Ready Balancing Ways

Balance 'most anything that revolves



Extremely sensitive. Discs accurately balanced. Always ready—need no adjustment—no leveling needed—no centers required. Last indefinitely. The hardened spindles hold their accuracy—don't become indented with ordinary use. Six sizes.

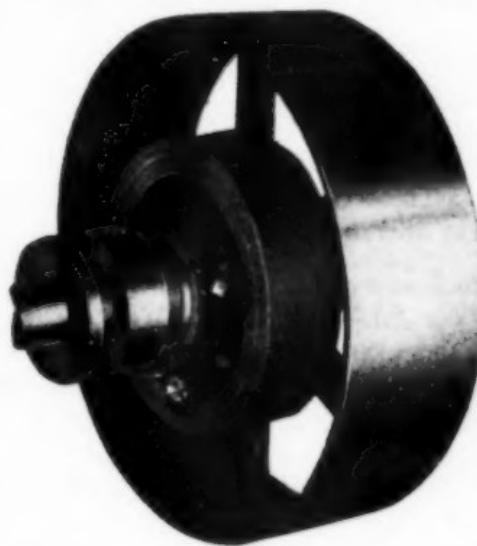
Get the folder and close price.

"Swing"	20"	40"	60"	72"	96"	72"
Greatest distance bet. standards...	20"	30"	30"	66"	88"	20"
Capacity in lbs.	1000	2000	2000	5000	10000	24000
Approx. shipping weight.....	45	90	150	350	650	
Code	Bend	Bid	Bis	Bib	Ben	

Any of above can be furnished with longer shafts

Anderson Bros. Mfg. Co.
1915 Kishwaukee St., Rockford, Ill.

Unusual Applications Are Easy for Conway Clutches



*The
CMT
Clutch
Pulley*

**There's
One
for
Every
Need**

ONE of the outstanding features of Conway Clutches is their sterling dependability under the severest strains. They are successful in applications where a clutch of lower quality would soon come to grief.

Conway Clutches are making good today in many machines of giant build, such as trench diggers. It is their duty to respond to every violent impulse of these mechanical brutes—to stop, to start, or to deliver the extra effort of overload, or sudden torque, and they *always* come up to expectations.

The above illustration is an ideal CMT application—the Clutch Pulley. And no matter what machine you are building or for what purpose you need a clutch—use Conways, and your worries on that score are over.

*Machine Tool Builders—we have a special
message for you—send us your requirements*

The Conway Clutch Company

1951 Riverside, Cincinnati, Ohio

Your Cost—As Should Be

Machine Tools are constantly improved with the sole object of reducing the cost of LABOR and OVERHEAD per MACHINE HOUR and to produce a part to a degree of accuracy that will cut the time for subsequent operations and for assembling.

Many new tools now available have increased production per MACHINE HOUR as much as ten times, and saved their cost in a few months. After this they put the saving on the profit side of the ledger.

Check the Machine-hours on the old machine, and

Know your costs—As is.

Then get a time study on a new machine, and

Know your cost—As should be, with

**MODERN MACHINE TOOLS—
The Master Tools of Industry**

KNOW YOUR COSTS

**NATIONAL
MACHINE TOOL BUILDERS'
ASSOCIATION**



Threading at 3000 R. P. M.

These rods are being threaded with a No. 8-32 thread 5-16" long, at an average production of 1400 pieces per hour on our Standard High Speed Tapping Machine.

How about your threaded work?

Leland-Gifford Co.
Worcester, Mass., U. S. A.

BRANCH OFFICES:

Boston
Cleveland

Chicago
Detroit

New York
Rochester





"Gusher" Motor Driven Machine Tool Lubricant Pumps

"GUSHER" PUMPS are simple, efficient, require the least power, and stand up to the severest wear and tear. They are "Pumps of Quality."

NO gears—NO foot or relief valves—
NO packing nuts—NO priming—NO
injury from grit or small chips!

Capacities, 3 to 30 gallons per minute.
Made also to set outside reservoir and
connect by piping where that is desirable.

Catalog and prices gladly sent on request

The Ruthman Mchly. Co.

528-534 E. Front St.

CINCINNATI,

OHIO

USE the CHICAGO No. 2 POWER PIPE THREADING MACHINE



For
Production
and Precision
Threading

PORTABLE

Capacity:
 $\frac{1}{4}$ " to 2" Pipe
 $\frac{1}{2}$ " to 1½" Bolt

Featuring:

1. Quick Die Change
2. Automatic Die Head
3. Three Speeds
4. Perfected Oil Control

Send for Catalog

**Chicago Pipethread
Machine Co.**

Office and Factory: 1623 Racine St., Racine, Wis.



When Westinghouse Buys Thirty-Four “Rarefieds”—

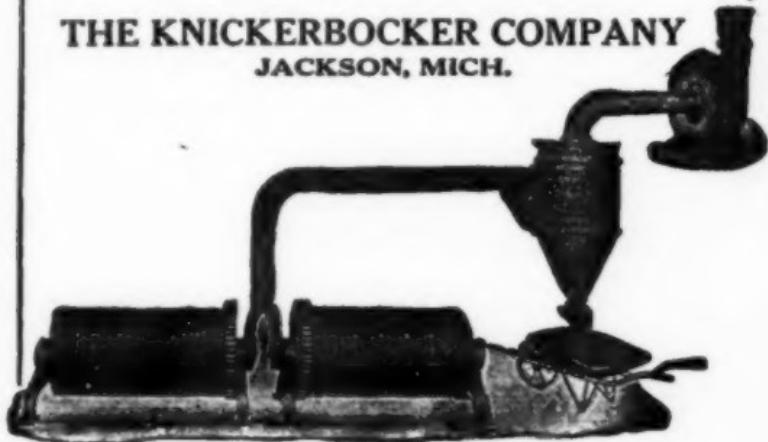
Doesn't it strike you as though the Dust Collector so recommended is decidedly well worth looking into? And Westinghouse is only one of our many satisfied big customers—we can also refer you to Buick Motor, Western Electric, Solvay Process, Willis-Overland, General Electric—and hundreds of others, both large and small.

The “Rarefied” Dust Collector

is operated on the “rarefied” or partial vacuum principle, the air being drawn thru the collector, and the dust is removed before the air reaches the fan. It is thoroly efficient, uses less power and repair costs are kept down close to zero.

Let us mail you our interesting Booklet

THE KNICKERBOCKER COMPANY
JACKSON, MICH.





No. 1
Hercules
Air Drill
(Patented)

Regularly
equipped
with
JACOBS
CHUCKS

Hercule Drill

The HERCULES
has a capacity
Two smaller
respectively, w
Chucks are fu

HERCULES
without piston
rods, giving h
and a minimu

Write us
HERCULES

THE BUCKEYE PORTABLE TOOL CO.,

*This advertisement is
in the interests of good Drilling
by the makers of the Ja*

Modern business



Hercules Portable Air Tools

Drills—Grinders—Buffers

HERCULES No. 1 Drill, shown in the illustration, has a capacity up to $\frac{5}{8}$ " and weighs only $1\frac{1}{2}$ lbs. Smaller types have capacities up to $\frac{1}{4}$ " and $\frac{3}{8}$ " respectively, with weights of only 7 and 8 lbs. Jacobs chucks are furnished as regular equipment.

HERCULES Portable Air Tools are simple in design, without pistons, toggles, crankshafts or connecting rods, giving high power with low air consumption and a minimum of vibration.

*Write us for complete information concerning
HERCULES Air Tools and for our liberal trial plan.*

CO., 135 Wayne Ave., DAYTON, OHIO

*Advertisement is published in the
Drilling Equipment
and Jacobs Chuck*

Business requires modern tools



Lourie's Quick Acting Arbor Presses

Many Styles and Sizes

The picture shows a small, compact power press for broaching, forming, punching, forcing, etc., etc.

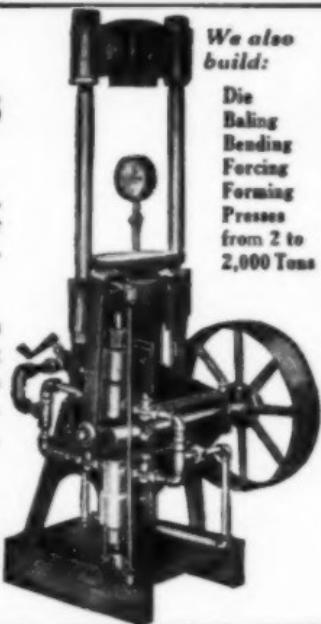
We can produce the press which will do your work well, and at bottom cost, no matter what your requirements may be in this line.

*Put it up to us today—
Glad to make an estimate*

LOURIE HYDRAULIC CO.
Springfield, Ill.

*We also
build:*

Die
Baling
Bending
Forcing
Forming
Presses
from 2 to
2,000 Tons



Atlas Arbor Presses For All Forcing Operations

Illustration shows our No. 55 Power Drive Press, which is adaptable for fast production work and capable of supplying ten tons pressure.

*Write for our Bulletin—
showing 30 different sizes*

Atlas Press Co.
Department B,
Kalamazoo, Michigan

One Man Handles All Dies



Type BB

With this up-to-date and exceptionally convenient One-Man — Four-Post

Screw Press
easily delivering
80-Tons Pressure

Your tool maker requires no help in handling any dies. Machine is sensitive, rigid, powerful. Perfect alignment of punch and die is assured.

Abundant room between bed and ram. We also make three smaller sizes. Table of Type BB is 20"x36".

A Surface Grinder

that's a revelation in quiet efficiency. Its rigidity insures accuracy. Has non-vibrating wheel. Both feeds have graduated dial.

Let us send folders and prices

**JARECKI MACHINE
AND TOOL CO.**

Successor to Manhattan Machine & Tool Works
Dept. A. GRAND RAPIDS, MICH.





Patented
Jan. 30, 1917

New "AUTEX" Extension Reel 1925 Model

1925 Model

Don't Forget the Swivel Joint Feature
Permits of carrying the lamp
in any direction.

Type 6 Rapidly finding a place in large
Industrial Plants, Machine
Shops and Service Stations.

**Now equipped with Belden Rubber Cord
Approved by the Underwriters**

Approved by the Underwriters

Write for descriptive circular

The Cincinnati Specialty Mfg. Co., Inc.
1903 Powers St., Cincinnati, Ohio

Use the Blue Book to Reach

The Big Manufacturers

in all lines of business, in every state in the Union, who use machine tools in their plants.

It goes to more of them than any other publication on earth, because we mail it to them.

Our method is simple, as most good things are, and as effective as it is simple.

Write for rates and full particulars

Hitchcock Publishing Co.
508 S. Dearborn St., Chicago, Ill.



The Old Way

Results in damaged shafts, bushings, pins and other parts, as well as accidents to the workmen.

With Nicholson Arbor Presses

all of these losses and accidents are eliminated, and considerable money is saved. Made in five sizes that take work up to 20" in diameter and 31" high and exerting pressures up to 9,000 lbs. Can make immediate delivery on all sizes and will be glad to send any size on trial.

Nicholson Expanding Mandrels

Save Space—A set of nine does the work of several hundred solid mandrels.

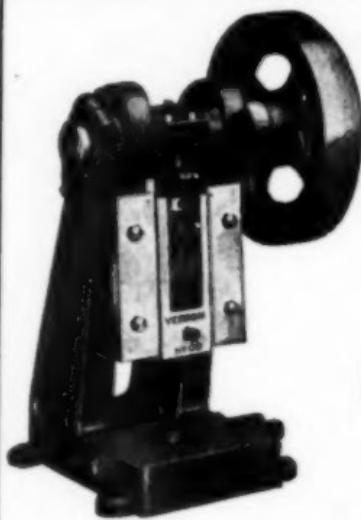
Save Time—Instantly fit any hole, round or square, from $\frac{1}{2}$ " to 7".

Save Labor—No need to caliper a dozen or so solid mandrels, or turn one down to fit a certain j.b.



Write for literature and 30-day trial plan

W. H. Nicholson & Co.
117 Oregon St., Wilkes-Barre, Pa.



Trade **Verson** Mark

Is a symbol of
QUALITY

found only on Verson

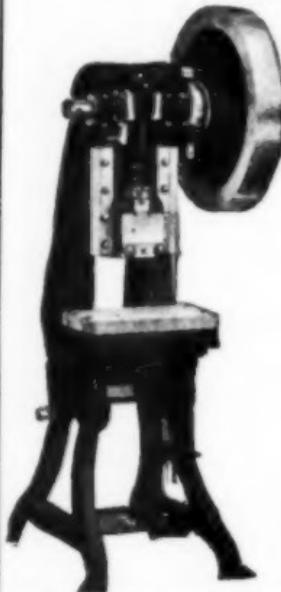
Power Presses
Arbor Presses
and
Angle Shears

For the prevention of accidents
insist on Verson presses.

They are equipped with an
Automatic Safety Clutch

Write for Circular

La Salle Machine Works, 3013 S. La Salle St.,
CHICAGO, ILL.



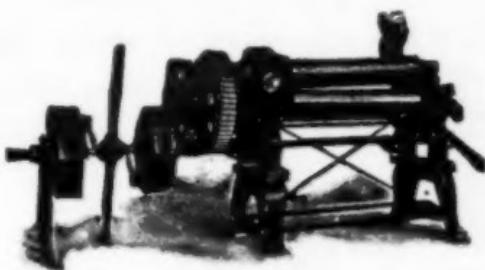
Husky, Powerful

speedy Punch Presses
deliberately designed
for High Production
work.

All Types and Sizes

Write for Catalog

Rockford Iron Works
Rockford, Ill.



BELOIT

INITIAL TYPE

Sheet & Plate Bending Rolls

The Beloit Initial Type Rolls are built in a large number of sizes and capacities, and for a great variety of work.

The modern design of the Beloit Rolls of this type makes it possible for the operator to curve plates completely to the edge, thus getting away from the undesirable flat near the edge of the sheet.

The quick-acting cam lever device raises the top roll for the removal of completed cylinders.

Individual and simultaneous adjustment of both ends of the forming roll can be furnished, and the machine can be arranged for third roll drive, when necessary.

Those in the market for Bending Rolls cannot afford to fail to give us their specifications, and to get our quotations.

We solicit your inquiries for Bending Rolls, either Initial Type as shown above, or the Pyramid Type machine, as well as for Punching and Shearing Machinery, both hand and power.

Hendley & Whittemore Co.
100 S. State St., BELLOIT, WIS.

-PEERLESS- **UNIVERSAL SHAPING SAW**

Know your costs!

Different Principles
Greater Efficiency
Give The Most Of—
Speed
Accuracy
Blade Economy

SIZES:
6"x16" - 9"x19" - 13"x13"

PEERLESS

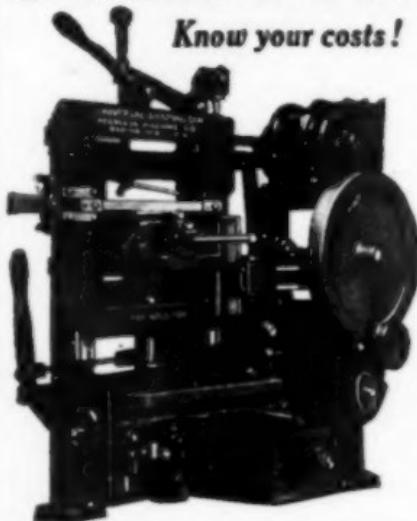
HIGH SPEED HACK-SAWS
6"x16" 9"x19" 13"x16"

Sturdy--Efficient--Reliable

Peerless Machine Co.

1609 Racine St.
Racine, Wisconsin

Write for Details



The Springfield Straightening Press

"The Acme
of
Convenience"



Made in
3 sizes

Invaluable
in the
tool room,
also for
straightening
crank and
cam shafts
and other
automobile
parts.

The arrangement of this press is the *acme of convenience*, as any work within the range of centers may be tested and straightened without unnecessary walking from press to lathe each time in straightening rough or finished work. Any length, however, may be operated upon. Of "Springfield quality."

Write for folder illustrating many of its uses

**The Springfield Machine Tool Co., Springfield
OHIO**

We also manufacture Engine Lathes and Shapers

Spring Press

(UNIFORM BLOW)

Foot or Power
Single and Double Action

These new dependable Presses
are used in large numbers by
manufacturers of—

**Electric Devices, Toys,
Jewelry, Clocks, Cutlery,
Hardware, Radio Sets,
Instruments, Etc.**

The Uniform Blow is a very
special feature—it increases pro-
duction and eliminates costly in-
spection. Investigate.

**The Taylor & Fenn Co.
Hartford, Connecticut, U. S. A.**



Be sure the letter



is on all your punch-

es and dies. They are made in our own factory and
are genuine.

Write for Prices

**WHITNEY
METAL TOOL CO.**
95 Forbes St.
ROCKFORD, ILL.

T.H.L. Front Lever Bench Punch

Malleable iron body; working parts hardened. Steel shaft and plunger. Die cannot lose alignment with punch. All parts interchangeable. Built for hardest, toughest work.

PRICE \$45

Extra Punches, 20 cents each;
extra dies, 30 cents.

Capacity 13/32" thru 1/4" steel,
11/32" thru 5 1/16". Punches up
to 1/2". Weight, 70 lbs.

A good buy; can ship promptly

**T. H. LEWTHWAITE
MACHINE CO.**
(Est. 1890)
417 E. 31st St., NEW YORK





Style "WC"



Style "O"



The Hinge



Style "G"



Style "A"

GITS Gravity and Wire Wick Feed Oilers

Gravity Feed—flushes the bearing.

Wire Wick Feed—gives desired prolonged feed.

Wire Wick—replaces waste or felt.

Made in Standard sizes.



Style "U"



Style "L"

GITS OIL CUPS

Oil cups for every lubricating need. State style and size in which you are interested, and we will send free samples and catalog.

GITS BROS. MFG. CO
1940 SO. KILBOURN AVE., CHICAGO

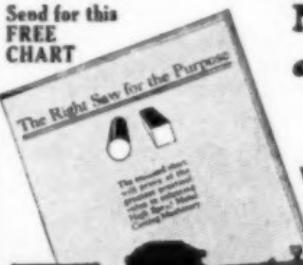
**Write for Catalog
No. 20**

Showing 255 full size illustrations with detail dimensions.



Style "T"

Send for this
**FREE
CHART**



Rear view
showing
motor
mounting



Capacity 4 in. Can be used as a portable. Not necessary to bolt to floor. Runs from electric light or power circuit. Ask for bulletins on Racine High Speed Metal Cutting Machines of every Capacity to 15 in.

New Improved “RACINE” JUNIOR

WORM GEAR DRIVE direct from motor is now used. All gears enclosed and running in oil. New Improvements in combination with old superiorities make Racine Junior absolutely free from vibration. The quietest, smoothest running as well as the fastest and most accurate metal cutting machine of its capacity.

Use “Racine” H. S. Wood and Metal Band Saw Blades & “Racine” H. S. Tungsten Power and Hand Hack Saw Blades. *Catalog H.*

Racine Tool & Machine Co.
1429 Junction Av., Racine, Wis.
“STANDARD THE WORLD OVER”

For Sawing Solid Bars, Beams, Channels, Angles, Tees, Etc. For Accurate Die Work, Tool Room Work and All Kinds of Shop Sawing, Use the MARVEL METAL BAND SAW No. 8

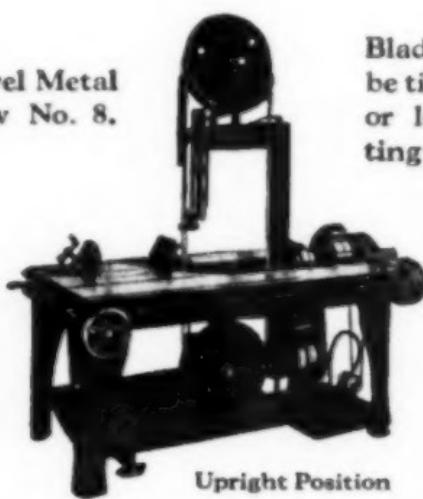
It cuts off square and true, and will also cut on an angle right or left without swinging the bar around the shop.

CAPACITY up to and including 18 INCHES

Write us today. Put one of these machines to work in your shop.

The Marvel Metal Band Saw No. 8.

Blade frame can be tilted to right or left for cutting on an angle.



Upright Position

Write today for special circular

ARMSTRONG-BLUM MFG. CO.
341 N. Francisco Ave., CHICAGO, ILL.

Second-Hand Machinery

Lists of Second-Hand Machinery, either For Sale, Wanted or For Exchange, set in uniform style, will be published under this heading at the rate of **50 cents a line**, across the page, each issue, plus **\$2.50** for name and address. Minimum charge, **\$5.00**. No display permitted in this department.

Write directly to those offering the machines for sale for prices and full descriptions. If what you seek is not listed, use the blank enclosed to make known your wants to the publisher, who will pass them along to all Machine Tool Blue Book advertisers.

Circulation of Machine Tool Blue Book, 25,000.

FOR SALE BY

M. A. Wertman,	-	-	505 Superior Bldg., Cleveland, Ohio
Bench centers, B. & S., 95%.			Motor, 30 h.p. Lincoln, 220-3-60, 90%.
Blue print machine, 42" Pease, 95%.			Press, No. 4 Biiss Styles, 90%.
Drill, No. 315 Baker, 90%.			Planer, 24"x6' Gray, 50%.
Drill, 6-spindle Nat'l-Acme 95%.			Screw machine, No. 2 Milholland, g. f. h.
Grinder, 24" Ingersoll, cutter, 90%.			Shaper, 24" G. & E., s. p. d., 90%.
Lathe, 16"x8' Lodge & S., g. h., 50%.			Shaper, 28" Ohio heavy duty, 85%.
Miller, No. 3 Kempsmith univ., 90%.			

FOR SALE BY

The Reeve-Fritts Co.,	558-560 W. Washington Blvd., Chicago, Ill.
Bench filer, No. 3 Barry, floor type.	Lathe, 26"x12' Blaisdell, \$300.
Drill, 16" Leland-Gifford, rd. col.	Lathe, 16" Dresses universal Fox.
Drill, 24" Milwaukee, b. g. p. f.	Miller, No. 0 Le Blond, plain.
Grinder, 5"x10" Greenfield plain.	Miller, No. 2-B heavy B. & S. plain.
Grinder, No. 2 Bath universal.	Pipe machine, 6" Merrill.
Grinder, 12" Besly, disc, complete.	Pipe machine, 12" Curtis & Curtis.
Lathe, 14"x8' Hendey, q. c. g., taper.	Planer, 22"x22"x5' Powell.
Lathe, 16"x8' Rahn-Larmon, q. c.	Planer, 32"x24"x6' Rockford.

FOR SALE BY

Foster Machinery Company,	10203 Quincy Ave., Cleveland, O.
Angle shear, No. 2 Cleveland, 4x4x $\frac{1}{2}$ " angle.	Miller, No. 00 Brown & S., hand.
Bolt cutter, 1 $\frac{1}{2}$ " Acme.	Miller, No. 00 Owen, Fox type.
Grinder, Greenard, tool & cutter.	Press, No. 1 Consolidated.
Grinder stand, Western No. 4, two 14" wheels.	Riveter, Hanna, 24" throat, 15" gap, 1" rivet.
Lathe, 18"x8' Lodge & Shipley.	Rivet hammers, No. 2-A, No. 4-A.
SQUARING SHEARS.	Shaper, 16" Garvin.
Bertsch 10'x14 ga., power.	No. 210-A Pexto, power.

FOR SALE BY

J. L. Lucas & Son, Inc.,	3 Fox St., Bridgeport, Conn.
	NEW BRITAIN AUTOMATICS.
2—New 1-9/16, 6-spindle, latest type, cost each \$4800	\$3600.
3—16x7, arranged for chucking, can be changed easily, serials 9000, ea. 2500.	
4—1x5, 6-spindle, motor drive, now under belt, serials 6580 and up, each 1250.	
4—Nearly new, 5-spindle, fine condition, extra parts, collets, serial 5061-38-89-90, each	750.
3—No. 3, 6-spindle chucking machines, still set up, serials 9000, each....	1500.
1—No. 24 chucking machine, rebuilt, with six 2-jaw chucks, ser. 6509...	1750.
1—No. 24 chucking machine, no chucks, will be rebuilt, serial 5779....	1600.
2—No. 33 chucking machines, very fine condition, serials 6188-8109, each	1750.

SECOND-HAND MACHINERY

FOR SALE BY

Cyril J. Bath & Co., E. 70th & Mchly. Ave., N.E., Cleveland, O.

BORING MILLS—VERTICAL.

42" Baush, 2 swivel heads, 75%.	100" Niles, 2 heads.
48" Colburn, 2 swivel heads.	10'-16' Betts, 2 swivel & 1 center hd.
42" Bullard rapid production, with one swivel and one turret hd., 80%.	60" Niles, 2 swivel heads and one internal boring head.
7' Betts, double head, 85%.	

BORING MILLS—HORIZONTAL.

No. 35-A Landis, floor type, horizontal, 90%.	No. 36 Landis, floor type, 3½" bar, 80%.
---	--

DRAW BENCHES.

15,000 lbs. to 25,000 lbs. Waterbury-Farrel, United Engineering and Standard; 20" draw, with 18" extensions for mandrels, heavy cast iron; 85%.

DRILLS—MULTI-SPINDLE.

4-spindle 20" Barnes, 85%.	4-spindle Barr sensitive, 85%.
----------------------------	--------------------------------

DRILLS—RADIAL.

4' & 5' Bickford.	No. I, 8' wall radial.
-------------------	------------------------

DRILLS—UPRIGHT.

24" Cincinnati, slid. hd., fric. bk. grs.	32" Cincinnati, with tap. att., 75%.
28" Cincinnati, sliding head, 80%.	24" No. 25 Foote-Burt, 90%.

FORGING MACHINES AND BULLDOZERS.

1, 2, 3, 4 & 5 Bulldozers.	250-ton Mesta steam hydraulic, 85%.
1", 1½", 2" & 4" Forging machines.	

GRINDERS.

No. 3 Brown & Sharpe univ., 70%.	18x36" Norton plain, 75%.
10x36" Modern univ., and parts, 70%.	Mammoth shear blade grinder, capacity 100" long.
84" Diamond surface, 85%.	

HAMMERS.

No. 2 Naze, air, arranged motor dr.	1500-lb. Waterbury-Farrell, board drop, 80%, (2).
100-lb. Bradley, helve, 75%—90% (3).	2000-lb. Waterbury-Farrell, board drop, 80%, (2).
350 lb. Bement Miles, steam forging.	2500 lb. Bement-Miles, stm. forging.
800 lb. Bement-Miles, steam forging.	800 lb. Chambersburg, stm. forging.
800 lb. Billings & S., board drop, 75%.	800 lb. to 4000 lb. Chambersburg and Massillon steam drop hammers.
800 lb. Waterbury F., board dr., 75%.	
800 lb. Lane, steam forging.	
1500 lb. Lane steam forging.	

LATHES.

16" to 20" tool room, various lengths.	32"x32" Bridgeford, comp. rest, m. d.
20"x10' Prentice, geared head, 85%.	36"x44" Bridgeford, c. r., m. d.
25"x12" LeBlond heavy duty.	48"x26" Bridgeford, grd. hd., t. a., 85%.
27"x22" Bridgeford, pl. turning, m. d.	54"x34" Houston, Stanwood & Gamble, geared head, motor drive.
30"x22" Bridgeford, pl. turning, m. d.	60"x36" Houston Stanwood Gamble.
32"x18" Schumacher, cone head, 60%.	

MILLING MACHINES.

Style "B" Goooley & Edlund, 80%, (2).	No. 3B Brown & S., pl., heavy, 60%.
No. 2 Cincinnati plain, 80%.	Becker miller, model "C," table 14"x54", motor drive, 85%.
No. 3 Brown & Sharpe, plain, 65%.	

PLANERS.

30"x30"x8" Gray, single head, 80%.	72"x72"x16' Betts, four heads, 90%.
48"x48x18" Pond, 4 heads, heavy duty.	60"x48"x16" Pond, 2 hds., old style, light pattern, 50%.

PIPE MACHINES.

No. 9½ Merrill, capacity 24" to 8".	
2", 4" & 8" Jarecki, with dies and countershaft, late models, 85%.	

PRESSES.

No. 57 Toledo trimmer, with side shear, 80%.	
Waterbury-Farrel trimmers, 60" flywheel, 80%, (2).	
No. 56 Consolidated, 4" stroke, 80%.	

BENDING ROLLS.

7"-8" capacity Hendley & Whittemore.	
10"-11" capacity Niles-Bement-Pond.	
14"-15" capacity Southwark.	

SECOND-HAND MACHINERY

Cyril J. Bath & Co.—Continued

PUNCHES AND SHEARS.

6x6 Hillis & Jones angle shear.	
No. 26 Whitmore slitting shear.	
No. 2 Hillis & Jones horizontal punch, 70¢.	
54" gap American ship punch, capacity 1" thru 1", 70¢.	
84" throat, Long & Allstatter capacity about 4" thru 4".	
Kling Bros. horn press, 60" horn, flywheel 50" dia., 6¢ face.	
48" throat No. 4 Southwark, capacity 2" x 1".	
60" throat No. 5 Southwark, capacity 1" x 1".	
36" throat style G, Cleveland, capacity 1" x 8" flat or 2 1/2" round bars.	
No. 6 Quickwork rotary shear, capacity up to 1 1/2" plate.	
36" throat Lennox rotary shear, capacity about 1" plate.	
No. 2 Garrison alligator shear.	

SAWS.

48" Newton cold saw, motor drive.	Power hack saws, 6" to 9".
-----------------------------------	----------------------------

SHAPERS.

20" American, crank, belt, 80¢.	24" Walcott, crank, back geared, 90¢.
---------------------------------	---------------------------------------

SLOTTERS.

48" Niles-Bement-Pond, motor dr.	12" Sellers, 75¢.
----------------------------------	-------------------

TUMBLING BARRELS.

Several sets 18" x 48" chill lined square, with roller bearings and exhaust.	
--	--

TURRET LATHES AND SCREW MACHINES.

21" Gisholt, standard model, 70¢.	No. 3A Warner & Swasey.
-----------------------------------	-------------------------

3" x 36" Jones & Lamson.	
--------------------------	--

MISCELLANEOUS.

Acetylene generator, Davis.	
-----------------------------	--

Blower, No. 4 Root, motor drive.	
----------------------------------	--

Blower, American, 9" fan, motor driven, 85¢.	
--	--

Blowers, Sturtevant, motor driven, 85¢, (2).	
--	--

Boring machine, for cylinders, portable, 4" bar, 7" feed, arranged for motor or engine drive, 75¢.	
--	--

Gear cutter, 36" Gould & Eberhardt, 60¢.	
--	--

Keyseater, No. 4 Mitts & Merrill.	
-----------------------------------	--

Pyrometer, Brown.	
-------------------	--

FOR SALE BY

Clinton Machinery Co.,

128 S. Clinton Street, Chicago, Ill.

MILLING MACHINES.

No. 3H LeBlond h. d. universal, fully equipped, each	\$1750.
No. 2 Cincinnati universal	500.

LATHES.

19"x8" Springf'd, s. q. c., d. b. g.	\$ 350.
18"x8" Boye & Emmons, q. c. g., taper attachment	600.
16"x8" Prentice, q. c. g.	400.

DRILL AND PUNCH PRESSES.

10" New Champions bench type, (15), each	\$ 30.
14" New Champions, (5), each.	85.
20" Superior, lever & hand fd.	50.
21" Weigel, b. g., s. h., with tapping attachment	250.
24" Superior, b. g., s. h., with tapping attachment	200.

SHAPERS.

14" Smith & M. crank, (2), ea.	\$ 235.
17" Smith & Mills b. g. crank.	375.

MISCELLANEOUS.

Grinder, 8" Heald ring & surf.	\$ 75.
Hammer, 2A HD High Speed.	150.
Oil separator, No. 2 American	150.

2540 cu. in. cap.	150.
------------------------	------

SECOND-HAND MACHINERY

FOR SALE BY

McDonald Machinery Co.,

Bolt threader, No. 734 Little Giant.
Clock, electric time system.
Demagnetizer, Walker.
Drills, Leland-Giff 2-3 sp., h.s., b.b.
Drills, 20", 24", 34" b.g., & tapping.
Drill, Fox 8-spindle adjustable.
Furnace, Hoicraft 9 k.w. annealing.
Hack saw, 4x4, 6x6 & 8x8 h.s.
Lathes, Davis 22"x10", Bridgford
27x9, Walcott 18x8, q.c.
Milling machines, Kempsmith No. 2;
LeBlond No. 4 heavy plain; Ohio
No. 20 plain; 1-Knight vertical mill
& drill; Becker "SD" vert., rotary
table, 17200 lbs.; Cin'ti No. 3 plain.

1531-33 N. Broadway, St. Louis, Mo.

Planers, Sellers 36"x36"x23', 2 heads;
Pond 42"x42"x16", 2 heads.
Punch presses, Swaine No. 40 arch;
Bliss No. 24, double crank.
Punches, Felber 1" in 1", and slitt.
shear; Scully, 20" throat, 1" in 1".
Saw, Nutter Barnes 6' cold.
Shapers, 26" open side planing; 18"
Smith & Mills; 18" Kelly; 16"
Cincinnati; 16" Milwaukee; 7"
Rhodes; 24" Walcott; 20" Ohio.
Shears, 60" thrt. rotary slitting, (2).
Welders, 20 k. w. spot, Toledo, (2).
Welders, butt, Federal, 1" rds.

FOR SALE BY

Brownell Machinery Co.,

No. 18 Beaman & Smith horizontal
drilling, tapping, boring and mili-
ng machine, 32" spindle.

BORING MILLS.

150 Pine St., Providence, R. I.

No. 1 B. & S. small auto. surface.
No. 2 Brown & S. cutter & reamer.
No. 1 Norton univ. tool & cutter.
No. 2 Norton univ. tool & cutter.
No. 12 B. & S. plain cylindrical

METAL CUTTING

No. 7-K Atkins Kwik-Kut hack saw
8x8.
13"x16" Peerless h. s. hack saw.

MILLING MACHINES.

No. 3 Brown & Sharpe universal.
No. 18 Brown & Sharpe universal.
No. 3 Brown & Sharpe plain.
No. 13 Garvin plain.

PLANERS AND SHAPERS.

48"x72"x20' Gray, 4 heads.
38"x38"x14' Gray, 4 heads.
30"x30"x 8' Bement-Miles, 2 heads.
26"x30"x14' Whitcomb-B., 2 heads.
24"x24"x 6' Powell, one head.

PRESSES.

Nos. 3 & 3½ Greenerd arbor presses.
No. 24 Atlas arbor press.
No. 1 Standard broaching & drawing.
No. 7 Zeh & Hahnemann percussion.
No. 71 Bliss s. a. 18" stroke.

SCREW MACHINES AND TURRET LATHES.

No. 90 Brown & Sharpe automatics,
with slotting attachment.
8" Gridley 4-spindle automatics.
8" Gridley 4-spindle automatics.
No. 6-A Potter & Johnston auto.

MISCELLANEOUS.

Broaching machine, No. 2 Lapointe.
Die filing machine, Thurston.
Drill, 25" Weigel, sliding head.
Drill, 3-spindle Cincinnati.
Gear cutter, 26" B. & S. No. 3 auto.
Gear cutter, 18" B. & S. No. 13 auto.

GRINDERS.

No. 1 B. & S. universal cylindrical.
No. 2 B. & S. universal cylindrical.
Garvin hand feed surface.
Sanford centerless.
Taylor & Fenn water tool.

TAYLOR & FENN WATER TOOL.

No. 2 Marvel hack saw.
No. 1 Burr cold saw.
No. 2 Burr cold saw.

WHITCOMB MACHINES.

No. 2 Brown & Sharpe vertical.
Type "A" Briggs manufacturing.
No. ½ Van Norman duplex.
Whitney hand miller.

WHITEHORN HAND MILLER.

17"x20"x 4' Whitcomb-B., one hd.
17"x17"x 4' Whitcomb, one head.
15" Hendey friction shaper.
16" Ohio plain shaper.
24" Gould & Eberhardt b. g. shaper.

PRATT & WHITNEY HAND SCREW.

No. 18 Bliss s. a. inclinable.
No. 2 Stiles s. a., 1".
Torrington, d. a.
100 lbs. Standard plain drop.
200 lbs. Standard automatic drop.

No. 6 B. & S. w. f. hand screw mch.
No. 2½ Garvin geared friction head.
3"x36" Jones & Lamson flat turret.
No. 2 P. & J. piston & piston ring.
18x18 Pratt & W., b. g., hand screw.

Marking mch., No. 6 Martin, hand.
Radial, 5' Reed-Prentice plain.
Radial, 6' Prentice Bros., cone dr.
Slotted, 12" Bement-Miles.
Swaging machine, No. 2 Standard.
Tapping mch., No. 2 Garvin vert.

SECOND-HAND MACHINERY

FOR SALE BY

Chas. Molitor Machinery Co., 118-124 S. Clinton St., Chicago, Ill.

LATHES.

32"x19' New Haven, taper, older style.
 24"x40"x12' Greaves-Klusman, gap.
 24"x10' Lodge & Shipley, grd. hd.
 20"x10' LeBlond heavy duty, q. c. g., taper attachment.
 29"x8' Monarch, q. c. g., dbl. g.
 18"x8' Morris, q. c. g., dbl. g., (2).
 18"x8' Walcott, q. c. g., d. b. g.
 18"x8' Sidney, q. c. g., d. b. g., (2).
 18"x8' Hamilton, q. c. g., d. b. g.
 18"x8' Bradford, q. c. g., d. b. g.
 16"x8' Monarch, q. c. g., sgl. pul. dr.

16"x10' & 16"x6' Pratt & Whitney, taper, draw, collets, relieving att.
 16"x8' Pratt & Whitney, q. c. g., taper, relieving attachment.
 16"x6' Walcott, q. c. g.
 16"x6' Pratt & W., q. c. g., taper.
 15"x6' Rockford, qk. ch. grd., taper, draw collet attachment.
 15"x5' South Bend.
 13" Champion engine lathe.
 12"x5' Pratt-W., taper, draw collets.
 22" Lancaster engine lathe.
 Porter-Cable, (2).

MILLERS.

24" Bullard vert. rapid production.
 No. 2 Kempsmith universal.
 No. 1 Kempsmith plain.
 No. 4 Cincinnati, single pulley.
 No. 5 Defiance horizontal.
 24" Bullard vertical turret.
 24" Colburn vertical.

No. 3 Kempsmith, gr. box fd., plain.
 Cincinnati Lincoln type.
 No. 2 Hendey, gear box feed, plain.
 Nos. 3, 5, 5A & 5C Becker, vert.
 Gooley & Edlund, production.
 24" Twin spline miller, P. & W.

PLANERS AND SHAPERS.

32"x12' New Haven planer.
 22"x5' Gray planer.
 16"x3' New Haven planer.
 24" Rockford b. g. crank shaper.

20" Smith & Mills b. g. crank.
 16" Columbia b. g. crank.
 16" Steptoe crank shaper.

DRILL PRESSES.

24" Baker Bros. heavy duty, (3).
 24", 26" Aurora, Cincinnati, etc.
 No. 3 Fox multiple, 16-spindle, $\frac{1}{2}$ ".
 2, 3 spdl. 24" Aveys, 1" cap. (3).

4-spindle Allen, $\frac{1}{2}$ ".
 Sipp's, with comp. tilting table, (2).
 1, 2, 3, 6 sp. Leland-Gifford, $\frac{1}{2}$ " cap.
 Large variety 14", 16", 20" & 24".

GRINDERS.

Bryant internal and chucking, (6).
 No. 13 Brown & Sharpe universal.
 Nos. 1 and 2 Cincinnati universal.
 Cincinnati universal, 4"x57" table.
 No. 1 & No. 2 Norton universal.

10"x36" Norton cylindrical.
 4"x20" Norton cylindrical.
 No. 11 Brown & Sharpe.
 40" disc, Gardner, Besly.
 No. 65 Heald cylinder.

SCREW MACHINES AND TURRET LATHES.

Jones & Lamson, single spindle.
 No. 3 Warner & Swasey pl. hand.
 No. 2 Brown & Sharpe semi-auto, (2).
 No. 6 Foster, power long. & cross.
 No. 4 Warner & Swasey universal.
 No. 4 Warner & Swasey, screw mch.
 1" & $\frac{1}{2}$ " cap. Acme, b. g., frict. h.

14" Gisholt, motor drive.
 Nos. 0, 1, 2, 3 Foster and Bardons & Oliver.
 1", $\frac{1}{2}$ ", $\frac{3}{4}$ ", 2" Cleveland auto.
 $\frac{3}{4}$ " capacity Acme universal.
 16"-18" Fox turret lathes, fric. hd.
 New Britain auto, chucking mch.

PUNCH PRESSES AND SHEARS.

100-ton Louie hydraulic.
 No. 4 Zeh & Hahnenman arch press.
 No. 3 Black & Johnson, (3).

10' Niagara square shears, 20 ga.
 $\frac{1}{2}$ " capacity slitting shear.
 No. 3 Overmeyer sprue cutter.

GEAR CUTTERS.

No. 12 Barber-Colman.
 No. 13 Brown & S., bevel & spur.
 Nos. 1 & $\frac{1}{2}$ Standard auto., (8).

Waltham automatic, (4).
 48" Brown & Sharpe spur.

MISCELLANEOUS.

Bolt cutter, 1" Landis.
 Bolt cutter, $\frac{1}{2}$ " Geometric.
 Bolt cutter, 1" Acme, dbl. spindle.
 Bolt cutter, $\frac{1}{2}$ " Landis, double.
 Bolt cutter, 2-spindle $\frac{1}{2}$ " Landis.
 Bolt cutter, $\frac{1}{2}$ " Acme, double head.

Broaching machines, Nos. 1 & 3B
 La Pointe.
 Centering machines, single and double spindle.
 Corrugating machine, steel, 7"x36".
 Reducing or straight. rolls, 6"x36".

SECOND-HAND MACHINERY

FOR SALE BY

Clark Machinery Co., 1235-45 St. Clair Ave., Cleveland, O.

Bolt threader, 2-spindle Acme, 1 $\frac{1}{2}$ ".
Boring mill, No. 2 Rockford.
Chucking grinders, No. 6 Bryant.
Drill, 26" Barnes, b. g., p. f.
Lathes, 14" to 24".

Machine tools for every purpose. Send us your inquiries.

Planer, 42"x42"x10' Gray, 2 heads.
Planer, 26"x26"x7' Gray, 1 head.
Punch press, No. 18 Bliss inclinable.
Punch press, No. 1 Sidney inclinable.
Turrets, Warner & S. Nos. 4 & 6.

FOR SALE BY

Tubor, Velick & Co., Inc., - - 628-630 W. Lake St., Chicago, Ill.

Telephones: Monroe 4199-6813. No Branches

PUNCH PRESSES.

No. 4 American Can.
Bliss No. 19.
No. 15 Torrie Wold.

Perkins punch presses, $\frac{1}{2}$ " str. (20).
No. 15 single end punch.
Long & A. horn punch, cap. 1 $\frac{1}{2}$ x1.

DRILL PRESSES.

14" Excelsior.
20" b. g., p. f., new, \$130.
20" drill presses (40), each \$40.
26" Weigel.
30" Reed-Prentice.
12-spindle Natco drill.

Demco high-speed drills.
Bench type drills.
3' American radial.
3 $\frac{1}{2}$ ' Hilbert radial.
3 $\frac{1}{2}$ ' Canedy-Otto radial.

MILLING MACHINES.

Nos. 2 & 4 LeBlond plain.
No. 4 LeBlond univ., sgl. pulley dr.
No. 2 Cincinnati universal.

No. 3 Kempsmith.
A number of hand millers.

LATHES.

11"x5' Seneca Falls.
12"x5' South Bend.
16"x6' Hamilton, q. c., (2).
16"x6' Sidney, q. c., (2).
16"x6' Monarch q. c.
16"x8' Canedy-Otto.
16"x8' National, q. c.

17"x9' Chard, q. c., (9).
18"x6' Lehmann, q. c., (2).
24"x10' Canadian, q. c., d. b. g., (3).
22"x10' Cisco, q. c.
25"x10' Sidney.
26"x12' Prentice.

PLANERS.

30"x30"x8' Fitchburg.
30"x30"x12' Niles-B.-P., 2 heads.
No. 2 Smith, hand.
Pratt & Whitney, hand, (3).

36"x36"x7' Flather, 2 heads.

SCREW MACHINES.

Nos. 1, 2, 3 and 4 Foster screw nicks.

GRINDERS.

Bath universal, with magnetic chk.
No. 2 Manhattan surface.
Gardner No. 6 disc grinder.

No. 14 Besly, disc.
Emery grinders, \$2 and up.

WOOD-WORKING MACHINERY.

Band saws, 36" Famous, new, (10).
Boring mills, Andrew, (3).
Shapers, dbl. spdl., Whitney, & Fay.

Saw table and jointer combined,
portable.
Swing saws, Porter, (4).

MISCELLANEOUS.

Benches, cabinet makers', (25).
Buffers, U. S. and Westinghouse,
5 h. p., b. b.

Punch press, No. 3 Thomas.
Punch press, No. 3 Robinson.
Punch press, No. 4 V. & K.

Hack saws.
Lockers, steel.

Saw mandrels, 83.

Motors, 75 h. p. G. E., a. c., slip ring,
600 r. p. m., (2).

Shaper, 15" Niles.

Motors, a. c. and d. c.
Pressed steel bench legs, (1,000).

Shaper, 16" Ames, b. g.

Pressed steel hangers and bearings,
all sizes.

Shaper, 16" Kelly, b. g.

Pressed steel stools, with backs.

Shaper, 24" Kelly, b. g.

Leather belting. Pulleys, shafting and hangers.

**SECOND-HAND MACHINERY
FOR SALE BY**

Marr-Galbreath Machinery Co.,

Angle & bar bender, No. 9 Buffalo.
Angle rolls, 4x4" & 6x6".
Bending rolls, 10"x10 ga. Bertsch.
Blowers, No. 3 Stur., pressure.
Blowers, pos. pressure, 5" outlet.
Bolt cutter, single, 14" Foote-Burt,
Landis head.
Boring mills, Rockford, 2" & 3" bar.
Boring mill, 36" Bullard, side head.
Boring mill, vertical, 72" Betts.
Boring mills, 51" Niles; 10'-16' Niles.
Boring mill, vertical 84", 2 heads.
Boring mill, 42" D. & H., 2 heads.
Boring mill, 12' Pond, 2 heads.
Brake, 8' Robinson, 16 ga., hand.
Brake or press, 10' Robinson, toggle.
Bulldozers, Nos. 4 & 27 W.-W.
Bulldozer, No. 7 Ajax.
Compressor, 8"x8" Ingersoll-Rand.
Compressor, 10x10" Sullivan, belted.
Compressor, 1500 cu. ft., I-R, steam.
Comp'r, 2500 cu. ft. L. D. G., a. c. mtr.
Compressor, steam, 864 cu. ft., Bury.
Compressor, 1300, 888, 599 cu. ft., m.d.
Crane, 40-ton Morgan, 67' span, 4
motors, 330 volts, d. c., new.
Drill, radial, 6' Baush, m. d.
Drill, radial, 5' Prentiss, t. a., m. d.
Drill, radial, 5' Western, hy., d.c mtr.
Drill, radial, 4' Mueller, d. c. motor.
Drill, radial, 4' American, gear box.
Drill, heavy gang, 4-sp., 12' table.
Drill, 3-spindle, Prentiss gang.
Drills, 36" Hoefer; 24" Aurora, s. h.
Drill, 30" Barnes, sliding hd., b. g.
Drill, 22" Aurora upright.
Exhausters, No. 8 Buffalo.
Filing machine, Rearwin die filer,
table 16" x17".
Forging mch., 14" Acme, steel bed.
Forging machines, 14, 2, 2½ & 3".
Gear cutter, No. 11 universal Dwight.
Gear cutter, No. 3 S. & C., auto, 1x1".
Generator, 100 k.w., 240 v., d. c., con-
nected to horiz. steam engine.
Generator, 85 k. w., 240 v., d. c., con-
nected to horiz. steam engine.
Grinder, No. 60 Heald internal.
Grinder, plain cyl., No. 12 Modern.
Grinders, No. 1 Cinti univ., c. & t.
Grinder, Yankee drill, style A.
Hack saw, 6x6 Peerless.
Hack saw, No. 5 Marvel, cap, 6x6".
Hack saw, No. 7-KC Atkins, 8x8.
Hammer, 100 lb., single fr., steam.
Hammers, sgl. fr., 350, 800, 1100, 1500.
Hammers, 40, 80, 100 lbs. Bradley.
Hammer, 125 lb. Bradley upr. strap.
Ice machine, 1-ton, with motor.
Lathe, 48"x27" Pond, g. h., a. c. mtr.
Lathe, 42"x32" Am., grd. hd., m. d.
Lathe, 30"x26" Am., g. h., a. c. mtr.
Lathe, 18"x10" Porter, s. b. g., c. r.
Lathe, 18"x 8' Lodge-S., g. h., pan.
Lathe, 16"x8' Bradford, pl. change.

58 Water St., Pittsburgh, Pa.

Lathe, 16"x 8' Lodge-S., q. c. g.
Lathe, 18"x6' Flather, taper att., ch.
Lathe, 15"x6' South Bend.
Lathe, 14"x6' Monarch, q. c. g., t. a.
Lathe, 13"x6' Star, q. c. g., chuck.
Lathe, 12"x8' Reed-P., g. h., s. p. d.
Lathe, speed, 11"x4' Prentiss, t-rest.
Miller, No. 24 Fox, hand, 24"x6"x14".
Miller, No. 62 Cin. pl., 18"x6"x15".
Miller, No. 3 LeBlond, pl. ind. hd.
Miller, Hendey Lincoln No. 24.
Miller, Knight duplex,tbl. 89"x32".
Miller, No. 6 Kempsmith universal.
Miller, No. 3 Cinc'i, plain 32"x9x20.
Miller, vertical No. 6 & 1 Bickett.
Miller, vertical, Becker "C" & 4.
Miller, bench, No. 3 Burke.
Millers, hand, Whitney, (2).
Motor, 3, 2 h. p., 1 phase, 60 cycle.
Oil separator, No. 2 Roper, belt.
Pipe machines, 12", 6" & 2" Jarecki.
Planer, 120"x120"x36", 4 heads, m. d.
Planer, 74"x54" x24' Pond, 4 hds.m.d.
Planer, o. s., 72"x72"x18", 3 hds..m. d.
Planer, openside 42"x42"x16", 3 hds.
Planer, Powell, 42"x42"x16", 4 hds.
Planer, 26"x26"x8' Niles, 1 head.
Planer, 24"x24"x 5' New H., 1 hd.
Press, No. 20 Bliss, o. b. i., plain.
Press, No. 2 B. & O., o. b. i. plain.
Press, No. 10 Bliss o. b. i., bench.
Press, No. 11 Perkins, pl. trim., 4" st.
Press, No. 82 Consolidated forming.
Punch, No. 124-A Niagara, 15", 1½".
Punch & shear, hand, Schatz, 8x1.
Punch & s., No. 21.. & A 20" tht., a.j.
Punch & shear, 14" & 72" tht., equal
No. 12 W. W.
Riveter, 1" Shuster, style A.
Riveter, 80-A Giant, cap, 1".
Riveter, Allen, jaw, 36x20x14" rivets.
Rivet hammers, 4-A, 5-A, high spd.
Rolls, bending, 40"x1", m. d.
Saw, cold, No. 18 Wagner, 16" saw.
Saw, cold, No. 114 Higley, 14" saw.
Shaper, 25" Smith & Mills, b. g.
Shaper, 16" Cincinnati, b. g.
Shapers, 14" Steptoe; 24" G. & E.
Shear, single end, 9" throat, cap, 3½"
round, motor drive, new.
Shear, Quickwork, Nos. 3 & 6 m. d.
Shear, Niagara 16-A ring & circle.
Shear, rotary, 1" Lenox, 8" gap.
Straightener, No. 2 Kane & Roach.
Testing mchs., 100,000, 200,000 lbs.
Tumbling barrel, Globe, 18"x15".
Turret lathes, Nos. 1 & 2 W. & S.
Turret lathe, 2x24" J. & L.
Turret lathe, No. 4 Wood Tilted.
Turret lathe, No. 1 Bardons & O.
Turret lathe, Libby 21", motor drive.
Upsetter, 3" Acme, semi-steel, A-1.
Valve mch., 28" Pottstown, 3-w., m.d.
Valve tapper, 4" Pottstown, 3-w., m.d.
Wheel press, 200 ton, 100" bet. bars.

SECOND-HAND MACHINERY

FOR SALE BY

Edward L. Klauber,

Centering machines, Whiton (2).
 Drill press, 34", b. g., s. h., t. a.
 Drill press, 24" Aurora, s. h., b. g.
 Drill press, 3 spindle Dwight Slant.
 Drill, S. C. H. 42" wall type radial.
 Drill, 20" Hoefer, w. & l. feed.
 Die head, Landis, cap. 2" pipe.
 Gear hobber, No. 1 Farwell, 14" cap.
 Grinder, Brown & S. No. 11 plain.
 Grinder, B. & S. No. 3 cut. & reamer.
 Grinder, Besly No. 10 disc, ring wh.

320 South Third St., St. Louis, Mo.

Lathe, 14"x6' Monarch, d.b.g., q.c.g.
 Lathe, 15"x7' South Bend, plain chge.
 Lathe, 16"x8' Monarch, d.b.g., q.c.g.
 Lathe, 16"x8' Lodge S., d.b.g., q.c.g.
 Lathe, 21x8 LeBlond hvy. duty, q.c.g.
 Lathe, 24"x10' Lodge & S., q.c.g.
 Lathe, 24x10 Wickes, d.b.g., semi q.c.
 Millers, No. 0 Burke, bench type.
 Punch press, No. 2 Rockford, o.b.i.
 Punch press, No. 3 Toledo, o. b. i.
 Turret lathe, W. & S. No. 2 hol. hex.

FOR SALE BY

B. L. Saltzman,

21" Champion, new.
 20" Rockford, 4-spindle.
 20" Plain.
 18" Sibley, b. g., power feed.
 16" Leland Gifford.

524-526 W. Van Buren St., Chicago, Ill.
DRILL PRESSES.

15" Disc on pedestal, tilting table.
 Heald, with 8" magnetic chuck.
 Prentice drill grinder.
 18"x9' Chard, new, q. c. g., 4'-4" cen.
 15"x8' Shepard 95% new, all geared
 head, arranged for motor drive.

GRINDERS.

Tool room grinder, Auto. Mch. Co.,
 No. 70 Crescent, with tool rest and
 counterhaft.

LATHES.

16"x8' Bradford, b. g., comp. feed.
 14"x6' Phillip Smith, q. c. g.
 14"x5' Phillip Smith, b. g.

PUNCH PRESSES.

Michigan No. 23 geared, arranged
 for horning press, 2" stroke.

No. 00 La Salle, bench type, 1" str.

PUNCHES AND SHEARS

No. 3 Little Giant punch & shear,
 capacity 8" in 3".

Hand lever punch, 1" cap. 8" throat.

No. 4-A Doty hand lev. slitting shear
 TOOLS.

No. 16-P Marshalltown rotary shear.
 20" Niagara square shear.

36" Niagara power square shear.

10" Auld power square shear.

36" Niagara power gap shear.

Yoder power wiring, beading, and
 forming machines.

MISCELLANEOUS.

Electric pyrometer, Bristol, range
 9-2000 deg. F.

Gear generators, 6" & 18" Gleason.

Oil spreaders, for punch press, rolls,
 8"x33".

Screw mch., Hartford auto., 1" cap.

Screw mch., Pratt & W., 1" cap.

Screw mch., No. 1 Foster, 13" spdl.

Screw press, Newell, 7" throw.

Shaft straightening press, 4" throw.

Shaper, Rockford 24".

Time recording system, Gisholt
 "Periodograph," 8 stations.

TINNERS

Brakes, 8' & 10', D. & K., steel.
 48"x3" geared slip roll.
 36"x3" new roller.
 26"x28" roller.
 No. 13 Niagara ring & circle shear,
 29 ga.

No. 10-P Marshalltown rotary shear.

Air comp., No. 2 Curtis, 2½"x2½".
 Arbor press, No. 3 Greenerd.
 Blower, No. 3-P American, 10" inlet,
 7½" exhaust.
 Blower, No. 13 Connersville, 4" opn.
 Blowers, Nos. 40 & 45 Ilg, a. c.,
 direct connected.
 Blower, No. 50 Ilg, d. c., direct con.
 Bolt threader, Acme, 2 heads, 1" cap.
 Centering machine, No. 1 P. & W.
 Centering machine, Binghamton.
 Cold saw, power, 4" cap.
 Electric pyrometers, Hoskins, range
 32-2000 deg. F., 4 stations.

Motors and Generators, a. c. or d. c.—Write us.

SECOND-HAND MACHINERY

FOR SALE BY

Surplus Material & Machinery Co., 8735 Kercheval, Detroit, Mich.

Bar shear, Carlin, 24" capacity.
Beader, Niagara No. 6.
Bending rolls, slip, 6x44".

Drill, index, 30" Baker.
Grinder, cyl., Baxter D. Whitney.
Grinder, plain, 12-42 Landis.

WANTED TO BUY.

Several No. 0, No. 00 & No. 2 Brown & Sharpe Automatic Screw Machines.

FOR SALE BY

A. F. Strafer.

30 Church St., New York City

BORING MILLS, VERTICAL AND HORIZONTAL.

12" Betts, geared feed, belt drive.
96" Betts vertical, arranged motor dr.
72" Niles-B.-P., heavy duty, m. d.
72" Bullard, a. c. motor drive.
12" Betts, heavy modern, m. d.

30" King, single turret head.
42" Bullard, 2 h., rapid traverse.
Bement-M. horiz., 6" bar, floor type.
38" bar, Lucas type, horizontal.
8" Bar Barrett cylinder borer.

DRILLS, UPRIGHT AND RADIAL.

6' Mueller plain, d. c. motor drive.
7' 6" & 5' Baush, belt drive.
6' Cincinnati Bickford, full univ.
D-3 Colburn heavy duty, s. p. d.

310 Baker, 2 $\frac{1}{2}$ capacity, s. p. d.
6-spindle, 20", Barnes.
26" Reed-Prentice, motor drive.
28" Mechanics upright, like new.

GRINDERS

No. 60 Heald cylinder, low price.
6"x32" Norton plain.
10"x36" Norton plain.
10"x24" Landis plain, self contained.

10"x24" Landis universal.
3"x18" Norton plain.
No. 11 Brown & Sharpe, 6"x32".
No. 3 B. & S. tool cutter.

GEAR CUTTERS.

36" G. & E., spur and bevel.
26" B. & S. No. 3, spur gears.

24" Bilton automatic.
60"x11" Brown & Sharpe No. 5.

LATHES

50"x36" Bement-Miles, t. g.
50"x16" Fifield, belt drive.
50"x30" Pittsburgh, h. d., q. c.
44"x21" Niles-Bement-Pond, t. g.

60"x16" New Haven, t. g.
24"x10" R. K. LeBlond, taper att.
21"x10 LeBlond, heavy duty.
27"x10" LeBlond, turret on shear.

TURRET LATHES.

34"x36" Acme, flat, modern, geared
head, chuck equipment.
18" Libbey, s. p. d., rapid traverse.
24" Gisholt, motor drive.
26" Gisholt, fine condition.
24"x36" J. & L., bar equipment.

34"x36" Jones & Lamson, bar equip-
ment, high serial.
No. 4 Bardons & Oliver (6).
24"x26" Greenlee, like new, cheap.
14"x8" American q. c. engine lathes,
turret on shear.

MILLING MACHINES.

No. 4 Cincinnati plain, cone type.
No. 3 Kempsmith univ., cone.
No. 3 Brown & Sharpe plain.
No. 3 Brown & Sharpe plain, cone.

No. 4 Brown & Sharpe plain.
13-B Brown & Sharpe, mfg. type.
No. 3 Cincinnati vert., high power.
U. S. Mfg. Co. hand miller.

PLANERS.

12"x25"-4 h., belt drive.
30"x8" D. & H. open side, 2 heads.
24"x24"x12" American, 2 heads.

54"x16" Wm. Sellers, 4 heads, b. d.
36"x36"x12" Gray type, 2 heads.
24"x24"x8" Gray, 1 head.

PUNCHES AND SHEARS.

No. 4 Hilles & Jones, double, 48"
throat, motor drive.
No. 6 Hilles & Jones, 60" thrt., m.d.
No. 6 Quickwork, 4" capacity.

25-U Buffalo combination.
Angle shear, Covington, 6x6 $\frac{1}{2}$.
Angle shear, 8"x8" armor plate.
Lenox rotary, 44" throat, 8" cap.

MISCELLANEOUS.

Bending rolls, 4"x20' Hilles & Jones.
Bending rolls, 1"x7' Wm. Sellers.
Bending rolls, 1"x10' 6" Southworth.
Bolt cutter, Landis, 1 $\frac{1}{2}$, double.
Broaching machine, Nos. 2 & 3
La Pointe.
Crane, 50-ton, 88' spar, P. & H., d.c.
Drill chucks, 1" capacity, new.

Fire pump, 1000 gal. Knowles, atm.
Flanging clamp, 96".
Forging mch., Ajax 18" steel bed.
Hammer, 9" McDougal & Potter.
Hammer, No. 4, type "I", Nazel.
Slotted, 18" Newton, 48" table.
Surface plates, B. & S. 12"x18".
Tapping attach., Errington 1" cap.

SECOND-HAND MACHINERY

FOR SALE BY

Service Shop Equipment Company,

No. 206 Elm St., - - - - Wyoming, Cincinnati, Ohio

Three brand new fully guaranteed "Willard" Tool Room Lathes.	\$615.
13"x6' quick-change, 3-step cone; list, \$765; our price.....	685.
15"x6' quick-change, 3-step cone; list, \$880; our price.....	695.

Customary discount allowed to legitimate Machinery Dealers.

FOR SALE BY

McCoy-Brandt Machinery Co.,

Bending rolls, 10"x8" Wickes, m. d.
Bending rolls, 16"x8" Wickes, m. d.
Bolt cutter, 18" Acme, belted.
Boring mill, 10' Niles, 3 heads.
Boring mill, 64" Betts, 2 heads.
Boring mill, 48" Colburn, 2 heads.
Boring mill, 6" bar, Niles horiz.
Bulldozers, Nos. 5 & 30 W.-W.
Drills, radial, 5' Prentice, s. p. d.
Forging machines, 2" and 3".
Grinders, 12"x48" Cincinnati plain.
Grinder, No. 4 Gardner double disc.
Grinder, No. 60 Heald cylinder.
Drills, 20" Colburn, No. 2 h. d.
Gear cutters, 38" G. & E., spd.
Gear generator, bevel 8" Gleason.
Lathe, 19"x8" Sidney, h. d., q. c. g.
Lathe, No. 5 Rivett precision, tur., etc.
Lathe, 16"x10' L. & S., cone, taper.
Lathe, 24"x26' American, q. c. g., m. d.
Lathe, 30"x18' L. & S., m. d., t. a.
Lathe, 48"x26' Bridgeford, m. d.
Millers, horiz., Nos. 3 & 5 Cincinnati.

210-14 Penn Ave., Pittsburgh, Pa.

Miller, vertical, No. 1 B. & S., m. d.
Miller, No. 2 Rockford pl., s. p. d.
Miller, Nos. 0, 1½, 2 & 3 plain, cone.
Millers, Nos. AB-1 Becker vert. s.p.d.
Pipe machines, 12", 10", 8", 4" & 2".
Planer, 30"x30"x8' N. B. P., 1 head.
Punch, multiple, No. 33 W.-W.,
ram 12" 2" long, 350-ton pressure.
Punch, 36" Cleveland 1½"x1", m. d.,
arch. jaw.
Punch, 24" Cleveland 1" x 1", m. d.,
arch. jaw.
Riveter, 36" reach, 21" gap, 10" cyl.
Rolling mills, 12" bar & 16" reduc.
Shears, guil., cap. 2½" and 2" and 1".
Shear, splitting, 24" throat Ryerson,
1" plate
Slotted, 12" Newton, crank, cheap.
Straightener, Abramsen, cap. 1" to
3½" bars, m. d.
Straighteners, Nos. 1 & 2 Kane & R.
Testing mches., 200,000 lb. Richle.
Turret screw mches., No. 0 Foster.

FOR SALE BY

Cincinnati Machinery & Supply Co., 215 E. Pearl St., Cincinnati, O.

SHAPERS.

12" Juengst, complete, \$175.
16" Cincinnati crank shaper.
20" American crank shaper.

MILLING MACHINES.

No. 1 U. S. hand millers, (5).
No. 2 Cincinnati plain, \$285.
No. 3 Brown & Sharpe plain.

LATHES.

14"x 6' LeBlond, q. c.
14"x 6' Lodge & Shipley, q. c.
16"x 6' Reed, geared head, q. c.
18"x 8' Monarch, \$325.

PLANERS.

24"x24"x 8' Gray, \$350.
26"x26"x 8' Gray.

GRINDERS.

No. 60 Heald cylinder grinders.
10"x20 Landis.

RADIALS.

3' Hickford, cone drive.
3' Prentice, sgl. pulley, gear box.

30"x30"x20' Hamilton.
48"x48"x14' Gray.

GANG GRINDERS.

10"x30 Landis.
No. 2 Brown & Sharpe universal.

RADIALS.

24' Gang, single pulley.

8' American.

Complete stock of machinery and supplies, new and used.

Write us your needs.

SECOND-HAND MACHINERY

FOR SALE BY

Bennett Machinery Co.,

Brake, 8' Chicago, 10 gauge.
Cold saw, 42" Newton, heavy.
Drills, 14" to 30" Barnes and Rockf'd.
Keyseater, No. 4 Mitts & Merrill.
Lathe, 48" x 25" Pond.

30 Church St., New York City

Miller, univ., No. 2 Milwaukee, cone.
Miller, univ., No. 3 Hendey, cone.
Planer, 54" x 12" Pond, 4 head, belt.
Plate planer, 18" Niles.
Radial, 4' Dreses, cone drive.

FOR SALE BY

Herman L. Winterer,

43" x 17" 48" Bement-Miles.
37" x 14" Johnson d. b. g., q. c. f., t. a.
32" x 12" Pittsburgh, heavy duty, q.c.g.
27" x 12" Bullard.
26" x 11" Wickes, q. c. g.
28" x 10" Niles, q. c. g.
25" x 16" Hendey, q.c.g., taper attachment, oil pan, (2).
24" x 14" Porter.
21" x 18" LeBlond.

TURRET

34" x 28" Pond, triangle.
3x 20" Pratt & Whitney, hollow hex.
20x 7" 6" Pratt & Whitney, back grd.
20x 7" Bridgeport, 28" h. s.
19" x 7" Fay & Scott, back grd.
No. 22 Garvin Monitor.

DRILL PRESSES.

42" Gang radial, s. p. speed box.
40" Barnes horizontal radials, (2).
36" Bickford radial, circular base, motor driven.
28" Rockford, q. c. g. feed, (2).

MILLING MACHINES.

No. 3 Cincinnati, table 9x250".
No. 15 Garvin, table 12x42".
No. 3 Becker-Brainard, new model, q. c. g., vertical attachment.

PLANERS AND SHAPERS.

12" x 10' x 25' Sellers planer, 4 heads.
48" x 37" x 9' Sellers, 2 heads.
30" x 30" x 8" Putnam planer.
48" Morton draw-cut shaper.
39" Pedrick & Ayer, open side.

MISCELLANEOUS.

Boring mill, car wheel, 60" Newton.
Boring, drilling and milling machine,
17" Bement Niles horizontal.
Boring mill, No. 1 Sellers, horizontal, 28" bar.
Boring mill, No. 3 Binsse, horizontal, 24" bar.
Grinder, 13" x 5" Landis universal.
Grinder, disc, No. 17 Besly.
Hammer, 15 lb. Bradley helve.
Hammer, 25 lb. Little Giant, m. d.
Hammer, 40 lb. Bradley, he. ve.
Hammer, 60 lb. Hotchkiss.
Hammers, 60 lb. Bellefonte upright; 2
Hammer, 500 lb. Merrill board drop.
Hammer, 750 lb. Merrill board drop.
Keyseater, 18" stroke Morton.
Pipe machine, 4" Cox.

Large assortment of General Machinery. Send for complete Price List.

SECOND-HAND MACHINERY

FOR SALE BY

Hill, Clarke & Co., Inc., - 156 Oliver St., Boston 9, Mass.

AUTOMATICS.

Brown & Sharpe Nos. 0 and 2.

BORING MILL.

Niles-Bement-Pond 53" vertical with two swivel heads.

RADIALS.

Western, 4' arm.

| Prentice, 5' arm.

KEVSEATER.

Mitts & Merrill No. 5 well equipped.

PLANERS.

Gray 24"x6", one head.

Whitcomb-Blaisdell 30"x8", 2 heads.

Cincinnati 24"x6", one head.

D. W. Pond 36"x16", 2 heads.

Whitcomb-Blaisdell 24"x8", 3 heads.

MILLING MACHINES.

Milwaukee No. 1-A mfg., single overarm.

Brown & Sharpe No. 2B plain.

Milwaukee No. 1B pl., sgl. overarm.

Milwaukee No. 3B pl., sgl. overarm.

Brown & Sharpe No. 1B plain.

Cincinnati No. 3 vertical, high pwr.

Garvin No. 1 universal.

TURRET LATHES.

Warner & Swasey No. 2A universal.

PIPE MACHINES.

Bignall & Keeler, 8" capacity.

SHAPERS.

Rhodes 3½" vertical.

| Smith & Mills 20" crank.

FOR SALE BY

Peninsular Machinery Co., 429-31 E. Jefferson Ave., Detroit, Mich.

LATHES.

13"x 5' Blount speed lathe.

17"x8' LeBlond rapid product'n, m.d.

13"x 5' South Bend, (2).

21"x11' LeBlond, all geared, (2).

13"x 6' Willard, (3).

21"x12' LeBlond line bearing.

13"x 6' Sebastian, (4).

26"x10' LeBlond crankshaft.

14"x 6' Carroll-Jamieson.

Adams short-cut lathe, with taper.

14"x 6' Reed, l. c. g., (2).

36x36 Lo-Swing.

16"x 8' Bradford, l. c. g.

DRILLING MACHINES.

3-spdl. Henry & Wright, h. s., b. b.

25" Barnes 4-spindle gang.

22½" Sibley all-gear'd, p. f.

No. 3 Baush multiple.

28" Barnes, s. h., taper.

MILLING MACHINES.

Briggs type A, (2).

No. 0 Rockford plain.

No. 32 Kempsmith.

No. 0 Steptoe plain.

No. 33 Kempsmith plain.

No. 3H LeBlond plain, cone type.

No. 2 Brown & Sharpe plain.

No. 24 Rockford univ., with vert. att.

TURRET SCREW MACHINES.

1½" Defiance, f. h.

No. 3 Foster f. h. turret lathes, (2).

2½" Pratt & Whitney, a. c.

GRINDERS AND POLISHERS.

No. 10 Brown & Sharpe plain.

No. 26 Besly, double spindle, m. d.

No. 190 Greenfield universal.

No. 5 Oliver m. d. drill grinder.

No. 50 Heald cylinder.

No. 4 Webster & Perks polishing.

20" Blount wet grinders.

Bennett & O'Connell dbl. sp. pol.

No. 15 Bryant, motor drive.

No. 23-B Valley City disc.

MISCELLANEOUS.

Band saw, 6" Napier.

Lapping mchs., Bethel-Player, (2).

Centers, bench, Brown & Sharpe, (3).

Metal cutter, No. 1 Gray.

Cutting-off mchs., 4" Hurlbut-R., (2).

Press, No. 3 L. & J., o. b. i. flywheel.

Gear cutter, No. 13 B. & S., bevel.

Press, No. 0 L. & J., o. b. i. flywheel.

Gear generator, 6" Gleason, bevel.

Screw slotter, No. 1 National Acme.

Gear generator, 18" Gleason, bevel.

Shaper, 7" Rhodes horizontal.

Gear hobber, No. 4 Farwell auto.

Tooth round's, 12" Rochester aut. (2).

Gear tester, bevel, Gleason.

Tumbling barrels, No. 3-S Globe, (2).

Hammer, drop, No. 5 Williams-W.

Welder, No. 40A Thompson, butt.

SECOND-HAND MACHINERY

FOR SALE BY

Betwink Brothers, Inc., 67 Water St., New Haven, Conn.
GRINDERS.

10—Heald No. 70 internal grinders with countershafts, A-1 condition. Price \$450.00 each, net, f. o. b. New Haven, Conn.

FOR SALE BY

Reliance Machinery Sales Company

Brighton Road at Pennsylvania Ave., Pittsburgh, Pa.

Boring mill, 30" Bullard, 1 head.
 Boring mill, 34" Colburn, 1 head.
 Boring mill, 42" Bullard, 2 heads.
 Boring mill, 54" Bullard Maxi., m. d.
 Boring mill, 72" Betts, 2 heads.
 Brake, 60" D. & K., 14 gauge.
 Broach, Nos. 3&4 LaPointe (Hudson)
 Buffer, 2 h.p. U. S. Elec., 220-3-60.
 Bulldozer, No. 5 Williams & White.
 Chamfering machine, Warner & S.
 Die slotter, 34" stroke, Garvin.
 Drill, 12" Leland-G. 6-spdl., m. d.
 Drill, 13" Fosdick 6-spdl., m. d.
 Drill, 16" Fosdick, 6-spdl., m. d.
 Drill, No. 4 Foote-Burt 4 spindle.
 Drill, Reed, 4-spindle, cap. $\frac{1}{2}$ "
 Drill, Baush, 8-spindle, No. 3 taper.
 Drill, No. 30 Natco, 12-sp., No. 3 tap'r.
 Drill, No. 13 Natco, 16-sp., No. 3 tap'r.
 Drill, 20" Barnes, camel back.
 Drill, 21" Cincinnati, sliding head.
 Drill, 24" Hoefer, sliding head.
 Drill, 26" Barnes, camel back.
 Drill, 36" Snyder, sliding head.
 Drill, No. 310 Baker heavy duty.
 Drill, Model F Turner auto, turret.
 Drills, 20" & 24" Foote-Burt, h. d.
 Gear cutter, 36"x10"G. & E., s. p. d.
 Grinder, type RA U. S. Electric.
 Grinder, type KKA U. S. Electric.
 Grinder, 20" Besly disc, m. d.
 220-3-60
 Grinder, Oliver drill, m. d., cap. $\frac{1}{2}$ ".
 Grinder, No. 70 Heald internal.
 Grinder, No. 5 Bridgeport wet tool.
 Grinder, No. 3 Brown & S. univ.
 Grinder, 6"x32" Norton plain.
 Grinder, 12"x30" Modern plain.
 Hammer, 80 lb. Bradley cush. helve.
 Hammer, No. 4 Beaudry, mtr. dr.
 Lathe, 12"x 6" Seneca Falls.
 Lathe, 12"x10' Davis tool r'm, q.c.g.
 Lathe, 14"x 6" Seneca Falls, q. c. g.
 Lathe, 14"x 6" Hendey, tie bar.
 Lathe, 14"x 8" Whitcomb-Blaisdell.
 Lathe, 17"x8" Sidney, hvy. duty, q.c.g.
 Lathe, 18"x8" L. & S., q. c. g., m. d.
 Lathe, 18"x8" Rahn & Larmon, q.c.g.
 Lathe, 18x10' Reed, q. c. g., d. b. g.
 Lathe, 22"x10' Putnam, hvy. duty.
 Lathe, 26"x12' Bridgeford hvy. duty.
 Lathe, 27"x26' Schumacher-B., q.c.g.
 Lathe, 30"x12' Johnson, triple grd.

Lathe, 30"x16' New Haven, p. c. g.
 Lathe, 33"x12' Pond, triple geared.
 Lathe, 34"x12' LeBlond, triple grd.
 Lathe, 38"x50' New Haven, dbl. hd.
 Lathe, 42"x12' Pond, triple geared.
 Miller, No. 1 U. S., hd., complete.
 Miller, No. 2 Cincinnati, h. p. vert.
 Miller, No. 3 Cincinnati, vertical attachment.
 Miller, No. 3 Hendey plain.
 Millers, models B & C Becker, vert.
 Millers, Sellers, Lincoln type, (2).
 Millers, No. 23 Becker plain, (3).
 Pinion rougher, 36 BM Gould & E.
 Pipe machine, B. & K., $\frac{1}{2}$ " to 2", m. d.
 Pipe machine, Merrill, 18" to 6".
 Pipe machine, 8" Cox, cap. 24" to 8".
 Pipe machine, Merrill, 24" to 12".
 Pipe machine, 12" Cox, cap. 6" to 12".
 Pipe machine, 16" Cox, cap. 8" to 16".
 Planer, 24"x24" x 8" Gray, 1 hd.
 Planer, 36"x36"x8" Cincinnati, 1 hd.
 Planer, 36"x36"x8" Clev'l'd openside
 Planer, 36"x36"x10' Pond, rev. m. d.
 Planer, 48"x18"x12' Clev'l'd openside.
 Planer, 60"x60"x16' Betts, 3 heads.
 Planer, 72"x22"x18' DeTrick & Harvey open side, m. d.
 Press, No. 10 Bliss, reducing, 4" str.
 Press, No. 23 Stoll, horning.
 Press, No. 87 Niagara screw press.
 Presses, Nos. 61 & 62 Bliss, o.b.f. w.
 Press, Ferracute DD2, o. b. i., can.
 Press, No. 65 Consolidated, 5" str.
 Press, No. 305 Bliss straight sided.
 Punch, Reade s. e., 4"x4", arch. jaw.
 Punch, Wickes, 48" thrt. cap. $\frac{1}{2}$ " x 1".
 Radial drills, 4" & 5" Prentice plain.
 Reduction gear, Foote, 50 to 1.
 Sand blast, Pangborn type EA.
 Saw, Williamson metal band.
 Saws, American metal sw., m. d., (2).
 Screw machines, Nos. 1 & 2 Warner & Swasey, plain head.
 Screw machines, No. 4 Warner & Swasey, g. f. h., power feed, (3).
 Shaper, 24" Cincinnati b. g. crank.
 Shear, No. 2 Quickwork rotary.
 Shear, 72" Niagara, 14 gauge.
 Shear, squaring, 96" power, 20 ga.
 Tapping mch., 2" Baker, type F-4.
 Tapping mch., 8" Baker, type K-11.
 Tooth rounder, 12" Rochester.

Our warehouse is full of bargains. What have you for sale?

SECOND-HAND MACHINERY

FOR SALE BY

J. E. Haetten & Co., Inc.	50 Church St., New York, N. Y.
Automatics, 8-1/2" Cleveland model B, (40), each.....	\$ 100.
Boring mill, 48" Colburn, 2 head, geared feeds.....	600.
Boring mill, 24" Bullard New Era.....	2650.
Boring mill, 72" Cincinnati vertical, heavy duty.....	5000.
Cranes, 25-ton N. B. P. 67' span, 4 motors each, like new.....	1500.
Drill, 4' Niles semi-universal radial, scarcely used.....	900.
Engraver, E-3 Keller die sinker, motor, like new.....	900.
Generator, 300 k. w., Westinghouse Parsons turbo, jet condenser.....	1750.
Grinder, 50" Gardner No. 24, with exhaust.....	450.
Grinders, No. 65 Heald auto. cylinder, like new (7) each.....	950.
Grinder, 15x15x10' Norton table type, surface, never used.....	3750.
Hammer, 200 lb. Gould & Eberhardt, drop.....	250.
Lathe, 50"x20' Putnam, single back geared, compound rest.....	500.
Lathe, 48"x28' Lodge & Shipley, t. g., q. c.....	2500.
Lathe, 38"x33' Pond, l. c. g., t. g., 2 carriages.....	1750.
Miller, 11x40 work surface, Lincoln type, good condition.....	200.
Miller, 30"x20"x16' Ingersoll, 4 heads A-1.....	2000.
Miller, No. 4 Pratt & Whitney vertical, g. h., heavy motor.....	2500.
Miller, 54"x20"x20' Ingersoll, 8 heads, a. c. motor 98%.....	6500.
Miller, No. 2 Owen universal, all attachments.....	800.
Oil separator, 24" American, belt drive.....	100.
Press, 92B Toledo, 36" wide, 36" stroke, geared.....	1050.
Shear, No. 5 Canton low knife, 26" blades.....	1200.
Turret, 2x26 Pratt & Whitney, bar work, and motors.....	850.
Turrets, No. 6-A Potter & Johnston, serials 15,700, (2), each.....	500.
Turret, 24" Greenlee, 3/4" hole, belt drive, 95%.....	900.

FOR SALE BY

Jones Machine Tool Co.,	528-532 E. Front St., Cincinnati, O.
LATHES.	
16"x 6' LeBlond, q. c. g.....	\$ 375.
16"x 8' Hendey, q. c. g. & t. a.....	975.
18"x10' Reed Prentice, grd hd.....	775.
MILLING MACHINES.	
No. 1½ Valley City universal.....	\$ 500.
No. 1½ Cincinnati universal.....	675.
No. 2 Hendey universal.....	775.
RADIALS AND DRILL PRESSES.	
24" American, s. p. drive.....	\$ 675.
48" American, s. p. drive.....	1200.
42" Gang, cone drive.....	375.
48" Hickford, cone drive.....	475.
72" Niles, cone drive.....	750.
PUNCH PRESSES AND SHEARS.	
No. 2 Niagara.....	\$ 160.
No. 5 Niagara, b. g.....	475.
No. 2 Swain horn press.....	275.
No. 6 Whiting, single end.....	475.
PLANERS AND SHAPERS.	
24"x 6' Powell 1 head.....	\$ 600.
30"x 6' Gray, 2 heads.....	850.
42"x26' Cincinnati, 2 heads.....	2250.
MISCELLANEOUS.	
Chain hoists, various sizes, (50)	
Gear cutter, 26" Cinti No. 3.....	\$ 350.
Gear cutter, 48" B. & S. No. 4.....	750.
Gear hobber, 24" S. & S.....	550.
Gear hobber, Barber-C. No. 12 1075.	
Grinder, 10x50 Norton.....	475.
Hack saw, 9x9 Peerless.....	225.
Hammer, steam, 800 lb. Niles.....	800.
Write for our latest Stock List.	

SECOND-HAND MACHINERY

FOR SALE BY

The H. A. Smith Machinery Co., **Syracuse, N. Y.**

Automatic, No. 53 National Acme 4-spindle.
Automatic No. 55 National Acme 4-spindle.
Automatic screw machines, No. 2 Brown & Sharpe, (3).
Automatic screw machine, No. 0 Brown & Sharpe.
Boring mill, 36" Gisholt.
Chucking lathe, 12x6 Hartness automatic.
Gear shaper, Fellows No. 62.
Grinder, 6x32 Brown & Sharpe plain.
Grinder, 12x48" Modern plain.
Grinder, 10x72 Landis, plain.
Grinder, 16x52 Landis, plain.
Grinder, No. 11 Brown & Sharpe plain.
Miller, Brown & Sharpe No. 13-B plain.
Miller, Brown & Sharpe No. 5 vertical.
Planer, 72"x54"x24" Pond, 4 heads.
Planer, 36"x36"x24" Pond, 4 heads.
Press, inclinable, No. 1 Sidney.
Radial, 4' Hammond sensitive, with tapping attachment.
Radial, 5' Fosdick full universal.
Turret lathes, 21" Gisholt, (3).

FOR SALE BY

The O'Brien Machinery Co.,

Boring machine, 36" Bullard, turret head, vertical.
Die sinker, No. 2 Pratt & Whitney.
Drill, 32" Aurora, motor driven, tapping attachment.
Drill press, D-1 Colburn heavy duty.
Drill press, No. 74 $\frac{1}{2}$ Bliss.
Grinders, foundry, Norton heavy duty, (2).
Hammer, 4000 lbs. Chambersburg steam drop.
Hammer, 2500 lbs. Chambersburg steam drop.
Hammer, 1500 lbs. Chambersburg steam drop.
Hammer, 1000 lbs. Chambersburg steam drop.
Hammer, 600 lbs. Chambersburg steam drop.
Hammer, 1500 lbs. Erie sgl. frame st.
Hammer, 1000 lbs. Niles-Bement-Pond, double frame.
Hammer, 1000 lbs. Billings & Spencer board drop.
Hammer, Bement-Miles, 300 lbs.
Lathe, 22"x11' Lehmann, geared head, taper attachment.
Lathe, 24"x12' Schumacher & Boye.
Lathe, 28"x25' Pond.
Lathe, 28"x30' Harrington.
Lathe, 36"x18' American, cone head, taper attachment.
Lathe, 26"x44" with 24' bed McCabe double spindle.
Lathes, extension bed gap, 25"-45"x14" Harrington, motor driven.
Millers, Gould & Eberhardt continuous, (2).

113 N. Third St., Philadelphia, Pa.

Milling machine, Newton combination circular milling machine and saw for structural work.
Milling mch., No. 2 Cincinnati vert.
Milling mch., No. 4B Becker vert.
Pipe machines, 2", 4", 6", 8" & 12"
Oster, Cox, Williams, Eaton-Cole & Burnham and Jarecki makes, belt or motor driven, comp. stock.
Planer, 36"x36"x12" Woodward & Powell, motor driven, 3 heads.
Planer, 36"x36"x24", Bement, 4 hds.
Press, No. 54 Toledo gr. str. side.
Press, No. 73 $\frac{1}{2}$ Bliss trimming press, with side shear.
Presses, Nos. 18, 19 and 20 Bliss.
Press, Chambersburg motor driven trimming.
Press, No. 3 Cincinnati Bickford.
Punch and shear, No. 3 Hilles & J., dbl. end, motor dr.; punch end, 42" thrt., cap. 14" thru 1", shearing end, 36" thrt., cap. 1" plate, 28" round, 7"x14" flat, 3"x5" x8" angle.
Punch and shear, Pels combination; punching cap. 1" thick; shearing 2" rd., 28" squares, 6x6x1" angles.
Radial drill, 5' Pond, motor driven.
Saw, Newton No. 2 cold saw.
Saw, Espen Lucas No. 10 cold saw.
Shaper, 24" American.
Shapers, 12", 14", 16", 21" and 24" stroke, assorted makes.
Shaper, 3 Bement-Miles massive heavy duty, traveling head.
Turret lathe, flat, 3"x36" Jones & L.
Turret lathe, No. 64 Hardons & Oliver, 2 $\frac{1}{2}$ " w. f. cap., cabinet base.

SECOND-HAND MACHINERY

FOR SALE BY

The Cincinnati Bickford Tool Co., - Oakley, Cincinnati, Ohio
Machine Tool Bargains.

LATHES.

14"x 6' Von Wyck.	17"x 6' 3" Hamilton.
16"x 8' Bradford.	24"x 10' LeBlond.
17"x 6' Greaves Klusman.	30"x 16' Lodge & Shipley.

HORIZONTAL BORING MACHINE.

One special construction Bickford.

MISCELLANEOUS.

Gear cutter, 26" No. 3 Brown & S.	Gear generator, 15" Gleason.
Gear cutter, 36" Gould & Eberhardt.	Milling mch., No. 4 Cincinnati pl.

FOR SALE BY

Star Foundry Co., - 214 Front Street, - Albert Lea, Minn.

Owing to changes in manufacture we offer:

Air compressor, 6"x6" dbl. cyl. Curtis, tank, 12 h. p. gas engine, 200' hose with couplings, one No. 80 Cleveland hammer, 1-1/2" air drill, all mounted on steel truck, portable. Price.....	8 500.
Boiler, 40 h. p. vertical, 120 lb. pressure. Price.....	100.
Bolt and pipe cutter, Wiley & Russell, 3" to 18" bolts, 3" to 2" pipe, c.s.	200.
Grinder, Schmidt cyl., c. s., blower and hose	400.
Hammer, 200 lb. upright power.....	500.
Planer, 48"x48"x16' Niles, 1 head, c. s. Price.....	500.
Set of Patterns, 6 sizes, fla.-ks, jigs, blue prints for Star Power Hammers 1,200.	

Nearly all above machinery is under belt and can be inspected at our plant.

All are in good working order.

FOR SALE BY

Syracuse Supply Company, 314 W. Fayette St., Syracuse, N. Y.

Guaranteed New Machines in original crates at prices below list:

Crucible, FD-104 Hoskins.	Grinder, Churchill internal.
Drills, 21" Canedy-Otto (2).	Lathe, 10"x5' Monarch.
Drills, 20" Buffalo (4).	Lathe, 14"x6' Monarch.
Drills, 36" Aurora sliding head (4).	Lathe, 14"x8' Monarch.
Drills, No. 11 Pratt & Whitney multiple, 16 spindles.	Lathe, 16"x6' Monarch.
Drills, No. 11 Pratt & Whitney multiple, 8 spindles.	Pipe machine, No. 70 Forbes.
Grinders, No. 60 Heald (2).	Screw mchs., No. 4 W. & S. g.i.h., (3).
Grinders, Diamond wet tool.	Straightener, No. 24 Corey.
Cylinder borers, 6-spindle Moline adjustable No. 5, 36".	Tilted turret, No. 4 Wood.

Exceptional values in Used Tools:	
Millers, No. 4 LeBlond plain (2).	Millers, No. 4 LeBlond plain (2).
Planer, 30"x30"x16' L. W. Pond.	Planer, 30"x30"x16' L. W. Pond.
Planer, 60"x60"x22' Niles.	Planer, 60"x60"x22' Niles.
Press, No. 69N Bliss.	Press, No. 69N Bliss.
Radial, 5' Pond.	Radial, 5' Pond.
Thread miller, 10" Lees-Bradner.	Thread miller, 10" Lees-Bradner.
Tilted turret, No. 6 Wood.	Tilted turret, No. 6 Wood.
Turret lathes, No. 4 Foster (2).	Turret lathes, No. 4 Foster (2).
Turret lathe, No. 2 Warner & S., hollow hex.	Turret lathe, No. 2 Warner & S., hollow hex.
Turret lathe, 24x26 Pratt & Whitney.	Turret lathe, 24x26 Pratt & Whitney.
Turret lathe, No. 24 s. g. Garvin.	Turret lathe, No. 24 s. g. Garvin.
Turret lathes, 3x36 Jones & L. (3).	Turret lathes, 3x36 Jones & L. (3).
Turret lathe, 2x24 Jones & Lamson.	Turret lathe, 2x24 Jones & Lamson.
Turret lathe, 21" Gisholt.	Turret lathe, 21" Gisholt.
Turret lathe, No. 3 Cincinnati-Acme.	Turret lathe, No. 3 Cincinnati-Acme.

SECOND-HAND MACHINERY

FOR SALE BY

W. P. Little Co.,

West 9th & Front Sta., Cleveland, Ohio

LATHES.

14" x 8' LeBlond, q. c. g.

16" x 6' Bradford, q. c. g., t. a.

MILLING MACHINES.

No. 13 Garvin plain.

16" x 10' Cincinnati, d. b. g., q. c. g.

26" x 9' Bridgeford, d. b. g., (new).

PUNCH PRESSES.

No. 18 $\frac{1}{2}$ Holden, o. b. l.

30" Geared arch press, old type.

GRINDERS, INTERNAL AND EXTERNAL SURFACE.

No. 3 Modern universal.

16" Heald rotary surface.

14" Pratt & Whitney vertical surface.

MISCELLANEOUS.

Alligator shear, No. 7C New Doty.

Bolt cutter, 2" Reliance.

Boring mill, Lucas horiz. 24" bar.

Broach, 3-A La Pointe Hudson.

Cold saw, 20" Burke.

Hammer, 250 lb. Morgan steam.

Hammer, 50 lb. Bradley, compact.

Planer, 24" x 10' Pratt & Whitney.

Screw mch., No. 1 Brown & S. auto.

Spline miller, 2" Pratt & Whitney.

Partial list. Send us your inquiries. 150 other tools in stock.

FOR SALE BY

The Strong, Carlisle & Hammond Co., Cleveland, O., Detroit, Mich.

ENGINE LATHES.

14" x 6' LeBlond, l. c. g. and chuck.

14" x 6' Hamilton.

14" x 8' Monarch, c. r., stand, pattern.

16" x 6' South Bend, c. r., complete.

16" x 8' Lodge & Shipley, old style,
c. r., q. c. g.

18" x 8' Prentice c. r., l. c. g., chuck.

TURRET LATHES AND

No. 2-A W. & S. g. h. tur. lathes.

No. 3-A W. & S. g. h. turret lathe.

26" Gisholt heavy duty turret lathe.

2" x 24" Jones & L. g. h. flat turret.

No. 00 Brown & Sharpe auto., (6).

No. 0 Brown & Sharpe auto., (2).

No. 4 W. & S., p. h., a. c. & b. f.

DRILLING MACHINES.

23" Cincinnati, sliding head, friction back geared, power feed.

24" W. F. & J. Barnes, sliding head, back geared and power feed.

6' arm Western radial, with tap. att., arranged for motor drive.

MILLING MACHINES.

No. 0 Bickett, hand, bench type (3).

Toledo hand milling machines (2).

GRINDERS.

No. 10 B. & S. plain, (2).

No. 6-A Bryant internal.

No. 1 LeBlond cutter grinder.

24" Baker heavy duty.

12" Mechanics, friction driven.

14" 4-sp. Leland-G. h. s., b. b. (2).

14" 2-spdl. Avey, h. s., b. b. (2).

14" 3-spdl. Henry & W., h. s., b. b.

14" 4-spdl. Henry & W., h. s., b. b.

SHAPERS AND PLANERS.

16" Hendey friction, (2).

METAL CUTTING TOOLS AND SQUARING SHEARS.

Higley cold saw.

GEAR CUTTERS AND HOBBERS.

26" & 36" No. 3 Brown & S. auto.

No. 18 G. & E. vert., for spur & spiral.

No. 3 Barber-Colman.

22" x 22" x 5' Putnam planers (2).

3" new Davis cutting-off machine.

HAMMER.

Quickwork body hammer.

SECOND-HAND MACHINERY

FOR SALE BY

J. L. Lucas & Son, Inc., - . . . 3 Fox St., Bridgeport, Conn.

DRILLS.

5-26" Snyder, back geared, power feed, sliding head, each.....	\$225.
2-24" Prentice back geared, power feed, sliding head, each.....	175.
1-28" Aurora back geared, power feed, sliding head.....	325.
1-42" Prentice back geared, power feed, sliding head.....	400.
2-8" Henry & Wright class K, high speed, each.....	175.
1-2-spindle 12" Henry & Wright class B.....	475.
3-4-spindle 21" Rockford, bk. grd., power feed, ball bearing spds., ea....	600.

FOR SALE BY

McMullen Machinery Company, - . . . Grand Rapids, Mich.

Automatic, 8" Cleveland.
Automatics, No. 00 B. & S.
Band saw, Napier, metal.
Cut-off saw, No. 4 N. & B.
Drill, 31" Barnes, sliding head.
Grinder, Cleveland, profile.
Grinder, No. 6-A Bryant.
Lathe, 9"x21" Sundstrand, mfg.
Lathe, 3x26 Greenlee, flat turret.

Ask for Complete List.

Miller, No. 2-H Becker vertical.
Pipe mch., 6" Merrill No. 62.
Press, Chicago scrap baler.
Press, No. 3 Manville, d. a.
Presses, No. 6 Manville, pillar, (3).
Presses, No. 6B Manville, pillar, (2).
Shear, No. 14 Pettingell, rotary.
Shear, No. 2 W. F. Co. 36" gang.
Welders, No. 10-A Thomson vert. (7)

FOR SALE BY

Hoosier Universal Machinery Co.,

Centering machine, Whiton 2-spdl.
Drills, Minster No. 1D heavy duty.
Flat turret, 3"x39" J. & L., 2-sp., new.
Gear cutter, Cincinnati, spur.
Gear hobber, Gould & Eberhardt.
Grinder, Landis No. 1 universal.
Horizontal boring, drilling and milling machine, Cleveland No. 1.
Planer, 26"x24"x14' Chandler No. 10,
single head.

Radial drill, 3' Am. Tool Works.
Saw, metal, 13"x16" Peerless, motor drive.
Screw machine, Defiance No. 4, new.
Tooth rounding mch., Schuchardt & Schutte.
Turret lathes, J. & L. 2 3/16"x36", bar and chucking.
Turret lathe, P. & W., 14"x14" swing.
Turret lathe, 24"x8 bed.

FOR SALE BY

A. M. Stoehr Machinery Co.,

Bolt cutters, 3 & 6-spindle Acme.
Boring mills, 42" Baush; 54 & 60"
Niles; all have 2 heads; and others.
Compressors, 12 different sizes.
Drill presses, single spdl., L. & G.;
2-spindle H. & W.; 4-spdl. Foote-Burt;
4-spdl. Barnes; 22" Rockford.
Gear hobs, cutters; No. 12 Barber-C., 48" & 60" G. & E.; 36" Fellows
gear shaper, and others.
Grinders, No. 3 LaSalle plain and
surface; 3x18" Norton, and others.
Header, No. 2 Manville.
Lathes, 22" to 44" McCabe; 18x8
Barnes, hvy. duty; 19x8 LeBlond,
q. c. g.; 16x8 Flather; 15 & 24 spin-
ning, and others.
Milling mchs., No. 25 Becker plain;
No. 6 Whitney; No. 9 Rockford pl.;
No. 3 Thurston dieing, & others.

560 W. Adams St., Chicago, Ill.

Oil extractors, centrifugal, (8).
Pipe machines, 6" Jarecki.
Punch presses, No. 16 Bliss horning;
No. 58 Crosby; and others.
Punch & shears, No. 3 L. & A., d. e.,
4" thru 4"; No. 14 W., d. e., 15"
throat, No. 66 Badger, hand;
No. 1-C New Doty, and others.
Riveters, 18-B & No. 3-A High
Speed; No. 1 Townsend; No. 1
L. & A., 4" capacity; and others.
Saws, 9x9 Sterling high speed; 12"
band, and eight others.
Screw machines, Nos. 2 & 3 Foster
(12); Nos. 52 & 53 Acme, others
plain and automatic.
Shears, Pittsburgh alligator, 14".
Tapper, R. & S., 4" capacity.
Welders, both spot and butt.
Wire straightening machines, (5).

SECOND-HAND MACHINERY

FOR SALE BY

Brown Machinery Co.,	2323 N. 9th St., St. Louis, Mo.
Buffing lathe, Hisey 3 h. p. electric, a. c.	\$ 100.
Buffing lathe, U. S. 3 h. p. electric, a. c.	125.
Drill, 24" Aurora, sliding head, tapping attachment	275.
Drill, Baush No. 3 multiple, cap. 30 spds., rectangular hd. 20x40". Price	1500.
Drill, radial, horizontal, No. 1 Barnes, d. e.	350.
Gear shaper, 36" Fellows	500.
Grinder, cylinder, No. 60 Heald	850.
Grinder, No. 14 Gardner, b. b., disk, dry, 20" disks, good cond. Price	400.
Grinder, No. 6 Besly two-spindle disk, 20" disks. Price	350.
Grinder, Bath universal,	750.
Grinder, LaSalle automatic surface, good condition. Price	275.
Grinder, No. 1 Brown & Sharpe universal, 10x24; good condition. Price	375.
Grinder, No. 14 Besly single spindle ring wheel. Price	400.
Grinders, emery, St. Louis and Western.	450.
Hammer, size A United, motor driven.	375.
Lathes, 16"x8" Monarch, heavy duty, each	300.
Lathe, 20"x8" Reed	400.
Miller, No. 1B Fox, hand & pwr. fd., 18x6x14; new, never used. Price	400.
Planer, 60"x60"x20' Niles, 3 heads.	50.
Polishers and buffers, drop head, New Britain, each	50.
Press, geared, Stiles & Parker, weight about 9000 lbs.	275.
Shear, Niagara 8', 18 ga., foot power, square, splendid condition. Price	275.
Shear, Marshalltown No. 134 rotary splitting, cap. 4" plate; 4' throat; arranged for motor drive. Like new. Price	750.
Many other bargains. Write for List No. 124.	

FOR SALE BY

Fitzsimmons & Cole Machinery Company	Pittsburgh, Pa.
1208 House Building,	
Air compressor, Ingersoll, 6x6", b. d.	
Bolt cutters, 1½" to 4" Landis	
Boring mill, 62" Bullard, b. d.	
Boring mill, 84" Bickford, m.d., new.	
Boring mill, 120" Niles, b. d.	
Die sinker, No. 3 Pratt & Whitney.	
Drill, radial, 4" Mueller, m. d.	
Flanger, McCabe, 4" capacity.	
Gear cutter, No. 13 Brown & Sharpe.	
Gear planer, 24" Gleason, bevel.	
Grinder, 16"x48" Landis, crankshaft.	
Grinder, 16"x52" Landis, plain.	
Hammer, 50 lb. Mayer.	
Hammer, 200 lb. Bradley.	
Hammers, 2-B-3-B, 4-B & 4-N Nazel.	
Lathe, 18"x 8" LeBlond, q. c. g., b.d.	
Lathe, 30"x16" L. & S., t. a. q. c. g.	
Lathe, 32"x34" Pittsb'gh, 2 car., m.d.	
Lathe, turret, 5"x30" Bardons & O.	
Miller, No. 4 Cincinnati pl., s. p. d.	
Miller, univ., Oesterlein, 25x12x10".	
Miller, Ingersoll slab 36"x36"x18".	
Pipe mch., No. 1-B Williams, 2" to 2"	
Pipe machine, 12" Jarecki, b. d.	
Planer, 36"x36"x24" Pond, 4 hds., b. d.	
Planer, 48"x48"x14" Gray, 3 hds., b. d.	
Planer, 48"x48"x14" Pond, 4 hds., b. d.	
Planer, 96"x96"x20" Pond, 4 hds., m.d.	
Planer, 120"x90"x27" Detrick & H.	
Planer, o. s., D. & H. 30"x8".	
Planer, o. s., Cleveland, 36"x36"x16".	
Planer, o. s., Cleveland, 48"x48"x20".	
Press, baling hyd. No. 12-P Logemann	
Press, No. 37½ Bliss, s. s., 6" stroke.	
Punch & shear, No. "A" L. & A., 2" thru 1½".	
Punch & shear, Cleveland 24" thrt., 1½" thru 1" arch. jaw.	
Punch & s., Pels, type RBLUEF-26.	
Punch, hor., Cleveland, 1" thru 1"	
Punch, multiple, No. 5 H. & J., 10'.	
Riveter, Hanna, 70-ton, 18" reach.	
Riveter, Hanna 30-ton, 75" reach.	
Rolls, angle bending, 4"x4" x2".	
Rolls, angle bending, 6x6x4" K. & R.	
Rolls, bending, 4" 6"x4", m. d.	
Rolls, bending, 8x8" N.-B.-P.	
Rolls, bending, 10"x1" Berstsch, m. d.	
Rolls, bend, 16"x1" Cleveland, m. d.	
Sand blast, MacLeod, 36"x36".	
Saw, hack, Peerless 9"x9".	
Shaper, 24" Cincinnati, b. g., m. d.	
Shaper, 24" Stockbridge, b. g., b. d.	
Shaper, 28" Queen City, s. p. d.	
Shear, alligator, Carlin, cap. 1½".	
Shear, alligator, No. 3 Canton, 2" sq.	
Shear, angle, L. & A., cap. 8"x8"x1½".	
Shear, bar, No. 17 Badger, comb.	
Shear, guil., No. 3 H. & J., cap 2½" sq.	
Shear, Toledo, 10"x3/16" cap., m. d.	
Shear, bevel, Ryerson 4", m. d.	
Straightening roll, 9-roll, rolls 3x42".	
Straightener, beam, No. 4 H & J.	
Testing machine, 100,000 lbs. Riehle.	
Upsetter, 24" Ajax, steel bed, b. d.	
Welder, No. 20-A Thompson, butt.	

SECOND-HAND MACHINERY

FOR SALE BY

D. C. Oviatt & Co., • • 1100 St. Clair Ave., Cleveland, O.
PRESSES.

Bliss Nos. 1½ & 3½B, toggle.
Bliss No. 2 double crank.
Bliss "Stiles" Nos. 3 & 4.
Bliss 68-C & 68-N double action.
Bliss 73½, 73½, 74½ & 75½.
Consolidated 56, 65, 75, 165.

MISCELLANEOUS.

Automatics, Gridley 1", 1½", 2".
Brake, Ohio 10' power, 3/16" cap.
Bulldozers, W. & W. 2, 4, 5, 30.
Drills, Colburn D-1, D-2, D-3.
Gear cutter, No. 3 B. & S. 26".
Gear cutter, No. 3 B. & S. 36".
Grinders, disc, Gardner 6 & 7.
Grinder, Pratt & Whitney 14".
Hammer, No. 2-B Nazelair, arr. m.d.
Rivet hammers, 2-A, 3-A, 4-A & 5A.
Rolls, Bertsch 10', capacity 1".
Saws, Ryerson friction No. 3.
Screw slotter, No. 2 W-F., cap. 3x3".
Seamers, double, Nos. 2½ & 3 Bliss.
Over 400 Machine Tools in stock.

Toledo No. 114 wiring press.
Toledo No. 666 knuckle joint.
Toledo 34-P, 35-P, 36-P presses.
Toledo 54 & 55½, straight side.
Michigan No. 5 inclinable flywheel.
Niagara No. 4½ inclinable, flywheel.

Seamer, double, No. 6 Niagara.
Shears, Bertsch 6', 21" thrt., 3/16".
Shears, Bertsch 8', 21" thrt., 3/16".
Shear, alligator, Canton No. 5.
Shear, alligator, Hilles-Jones No. 2.
Shear, Niagara 416-C slitting.
Shear, Toledo 36" x18 ga. power.
Tapper, Garvin No. 2 automatic.
Tumbling barrels, 18" x30" x48".
Turret lathes, W. & S. 4 and 6.
Turret lathe, Libby 18".
Turret lathes, Acme 34" x36".
Welder, Winfield, 2 pcs. 11 ga. cap.
Welder, Federal No. 10-A butt.
Send us your inquiries.

FOR SALE BY

Wm. C. Johnson & Sons Machinery Co.,

1211-1223 N. 12th St.,

St. Louis, Mo.

30" arm Dreses radial.
5' arm Pond.
4' arm Bickford.

15" x 7' Carroll-Jamieson.
15" x 6' Monarch, q. c. g.
20" x 10' Rahn & Mayer.
44" x 24" Pond, triple geared.

24" x 24" x 6' Powell.
36" x 36" x 10' Flather, 2 heads.

No. 1½ Rockford plain.
No. 1½-A Rockford plain.
No. 1½ Brown & Sharpe.
No. 1 Knight vertical.
No. 3 Oesterlein plain.

Schmidt auto. cylinder, 2½" x 10".
5" x 18" Ott.
No. 1 Fraser surface grinder.
30" x 84" Diamond face grinder.

MILLING MACHINES

No. 3 Cincinnati plain.
No. 4 Cincinnati plain.
No. 12 Kempsmith.
No. 33 Kempsmith.

GRINDERS.

No. 50 Gardner disc.
No. 16 Brown & Sharpe plain.
8" Heald rotary, magnetic chuck.
Washburn twist drill grinder.

MISCELLANEOUS.

Air compressors, (8).
Acetylene generator, 100 cu. ft. cap.
Belt lacer, large, Peerless.
Bolt cutter, 1" Landis.
Bolt cutter, 2" Standard.
Boring mch., hor., No. 2 P. & H.
Bulldozer, 75-ton Lourie hydraulic.
Gear hobber, No. 1 Schuchart & S.
Hammer, 90 lb. Justice.
Hammer, No. 2-A high speed.
Pipe machine, 16" Bignall & Keeler.

Post hammer, Pettingell.
Punch, No. 5 Long & A., 5" throat.
Punch, No. 7 Long & A., 4" throat.
Riveter, model A, Shuster.
Screw machine, 3" x36" Jones & L.
Screw machine, 2" x24" Jones & L.
Screw mch., 1½" Smurr & Kamen.
Swaging machine, Excelsior.
Tapping mch., auto., No. 1 Garvin.
Tilted turret lathes, Nos. 2, 3 & 4
Wood.

An Invitation

We are going to hold a testing-out party
and you are cordially invited to attend.

A 30" swing x 40' bed Lodge & Shipley Lathe is being reconditioned at our Jersey City shops. If you are interested in purchasing a lathe of this design—quick change—double back geared—hollow spindle—single pulley—arranged for motor drive thru variable speed countershaft—you will be interested in seeing this lathe at a test to be given for public view.

Just drop us a line and we will tell you the date.

80" Swing x 46' Bed, Putnam Lathe. All Steel Geared Motor Drive.

McCabe Flanging Machine.

24" Back-geared Cincinnati Shaper.

Inspect them and get the "before moving price."

J. J. McCabe's "2-in-1" Double Spindle Lathes

We have a few rebuilt "2-in-1" lathes. One of them, a 32¹/2" x 54" Swing Lathe with a 14' Bed is exceptionally good. It has passed the tests of a new lathe and carries our same guarantee. The equivalent of two lathes for the price of one.

Other "2-in-1" Lathes in Stock

26/48" Swing x 12' Bed.
26/48" Swing x 22' Bed.
26/48" Swing x 28' Bed.
38/60" Swing x 30' Bed.

Some of our "Former Pattern" Lathes 24/40" and 26/44" Swing.
Very low price.

Planers

72"x72"x24' Niles, 4 Hds., Belt Dr.
48"x48"x30' Putnam, 4 Heads.
48"x48"x14' Pond, 2 Heads.
48"x48"x15' Sellers, 3 Heads.
26"x26"x 6' Niles, 1 Head.

Boring Mills

8' Niles, 2 Heads.
50" Bullard, 2 Heads.
48" Gisholt, 2 Heads.
4 $\frac{1}{4}$ " Bar Niles Horizontal.
4 $\frac{1}{4}$ " Bar Bement Miles Horizontal.
2 $\frac{1}{2}$ " Bar Bement Miles.

J. J. McCabe Lathe & Machinery Corp'n
SINGER BUILDING - - - NEW YORK CITY

FOR SALE

- | | |
|---|----------------|
| 5—No. 1 CINCINNATI Back Geared
Plain MILLING MACHINES..... | \$275.00 each. |
| 3—3 ¹ , AMERICAN Sensitive Radial
Drills..... | \$250.00 each. |
| 2 36" BROWN & SHARPE Gear
Cuttters..... | \$950.00 each. |
| 2 12"x36" CINCINNATI Plain
Grinders..... | \$875.00 each. |
| 2—No. 75 HEALD Internal Grinders | \$425.00 each. |
| 4 Spindle NATIONAL ACME Screw Machines | |
| 7—No. 52— $\frac{3}{8}$ " Capacity..... | \$425.00 each. |
| 3—No. 56— $2\frac{1}{4}$ " Capacity..... | \$650.00 each. |

CINCINNATI AUTOMATIC MACHINE CO., Cincinnati, Ohio

SPECIAL

1750 foot Laidlaw-Dunn & Gordon
Two-Stage Belt Driven

Air Compressor

high pressure cylinder 25 in., low
pressure cylinder 15 in., stroke 18 in.

PRICE \$1475

F. O. B. Louisiana shipping point

Address BOX 38,

Care Hitchcock Publishing Co.
508 S. Dearborn St., Chicago, Ill.

**MOTCH AND
THE MERRYWEATHER
MACHINERY CO**
CLEVELAND
DETROIT CINCINNATI
PITTSBURGH

Machines of Quality

Several hundred used machines are stocked in our Cleveland warehouse.

Connected with this is a model machine shop devoted exclusively to rebuilding these machines.

Let us send you one of our circulars describing our methods, listing our stock and picturing our plant.

Upon receipt of your address we will forward these circulars periodically.

Real Values—Real Rebuilt Tools

SHAPERS AND PLANERS

28" Ohio heavy duty bk. grd. crank.
26" Stockbridge heavy duty, b. g. c.
20" Columbia hvy. duty bk. grd. crk.
16" Walcott elliptical geared crank.

MILLING MACHINES

No. 4 LeBlond univ., cone pulley.
No. 3 Standard Cinti univ., sgl. pul.
No. 3 LeBlond univ., cone pulley.
No. 2 Hi-Power Cin'ti univ., sgl. pul.
No. 2 LeBlond univ., cone pulley.
No. 3-B heavy B. & S. plain, sgl. pul.
No. 3 Hi-Power Cin'ti pl., sgl. pul.
No. 3 Kempsmith plain, cone pul.
No. 3 LeBlond plain, cone pulley.

RADIAL AND UPRIGHT DRILLS

8' N.-B.-P. semi-universal, radial.
3½' American triple purpose radial,
speed box.
3' Bickford plain, speed box.
3' Amer. T. Wks. pl. radial, cone dr.
3' Carlton hi-speed sens. radial.
28" Aurora upright, tapping attach.
26" W.F. & J. Barnes upright, tap. att.
26" Cinti-Bickford upright tap. att.
24" Milwaukee upright.

LATHES

36"x22' Putnam, s. q. triple geared.
36"x18' Putnam, s. q. triple geared.
30"x12' LeBlond heavy duty, qk. ch.
30"x16' H. & G. heavy duty, q.c.
24"x14' Schumacher-B. stand'd c. g.
24"x10' Hoye & Emmes, q. c. g.
22"x12' Rahn & Larmon, qk. chge.
20"x10' Bradford, quick change gear.

TURRET LATHES &

3½"x38" Acme flat turret, grd. head.
2½"x26" P. & W. flat turret, grd. hd.
24" Gisholt turret, late type, 6½"
hole in spindle.
2" Pratt & Whitney turret, all feeds.

GRINDERS

No. 55 Heald cylinder, complete.
No. 60 Heald cylinder, complete.
No. 70 Heald internal, complete.
No. 2 B. & S. surface, mag. chuck.

GEAR CUTTERS

No. 4-36" Brown & Sharpe auto.
No. 3-24" Brown & Sharpe auto.
24" Gould & Eberhardt automatic.

MISCELLANEOUS

Arbor presses, Greenard Nos. 4 & 5.
Bolt cutter, 2" National, complete
with dies.
Bolt cutter, 1" Acme.
Bolt threader, 1" Landis.
Cold saw, No. 1 Cochrane & Bly,
belt drive.
Keyseaters, Nos. 1 & 2 Davis.

And many others. Send for our complete list of bargains.

EASTERN MACHINERY CO.

No. 408 East Pearl St., Cincinnati, Ohio

All of the above Machines carried in our Stock in Cincinnati.

The Rights to Manufacture
The GARVIN Line
FOR SALE

This offer includes all drawings, patterns, jigs and fixtures for the manufacture of GARVIN universal, plain and vertical milling machines, automatic index machines, dividing heads and tail stocks, with manufacturing and service rights and customers' list.

Approximately \$5,000,000 worth of machines sold. \$100,000 can be salvaged from machines in process of manufacture. Annual service business about \$15,000.

*A Real Opportunity For You
If You Are Seeking a Good Line*

No need to tell you more.
You know these machines.

Write—Wire—Call or Phone for Details

Industrial Plants Corporation
National Liquidators

25 Church Street,

New York City

(Phone Rector 2270)

Must Vacate Our Warehouse— Attractive Prices To Move Stock

BORING MILLS:	30" Warner & Swasey Vert., table 29" dia.....	\$200.
	36"/48" Bridgeport Extension, 1 swivel head.....	325.
GRINDERS:	Webster & Perks D. E. Heavy Foundry Type, takes wheels 24"x4"	\$ 50.
LATHES:	15"x8" Schellenbach, h. s.....	\$275.
	19"x10" LeBlond, b. g., hollow spindle, motor drive, as is.....	150.
	21"x12" Johnson, hollow spindle, taper attach.....	275.
	24"x14" Rahn-Mayer Corp.....	650.
	24"x16" 6" Johnson, solid spindle.....	375.
	26"x10" 6" Walcott Hwy. Duty Q.C.G., 7, ea.....	650.
	27"x12" Pittsburgh.....	700.
	24"x6" Gibolt Turret, 6 1/4" hol. spdl., 2, ea.....	950.
	3"x36" Jones & Lamson Flat Turret, as is.....	200.
	3"x36" Jones & Lamson Flat Turret.....	950.
	2 1/4"x24" Jones & Lamson Flat Turret.....	850.
MILLING MACHINES:	No. 3 Cincinnati Plain, table 12"x3'11", as is.....	\$250.
PRESSES:	Double Cam Action, 4" stroke.....	\$150.
	Double Acting Drawing, 3 1/4" stroke.....	175.
	No. 56 Knuckle Joint Embossing Press, 60 tons.....	150.
SHEARS:	Waterbury-Farrell Rotary Shear, about 16 ga.....	\$ 45.
HAMMERS:	25 lb. Bradley Cushioned Helve.....	\$140.
	40 lb. Bradley Cushioned Helve.....	175.
	800 lb. Bement Single Frame Steam Forging.....	475.
	2000 lb. Bement-Miles Sgl. Frame. Stm Forg g.....	1300.
	2000 lb. Bement-Miles Steam Drop.....	475.
SHAPERS:	14" Gould & Eberhardt Single Geared Crank.....	\$160.
	24" Cincinnati Back Geared Crank.....	650.
MISCELLANEOUS:	Air Compressor Chicago, 690 cu. ft., 100 lb. PRESSURE.....	\$750.
	Baler, No. 8 Poston Hopper Door Steel, makes bale 16"x22"x28" weighing 100 lbs.....	10.
	Bender, Hand Power, Bending Length 12".....	10.
	Blower, No. 8 Sturtevant, Pressure.....	60.
	Blower, No. 8 Buffalo, Volume.....	60.
	Engine, Gas, 15 H. P. Fenner Horizontal.....	75.
	Gear Blank Castings, C. I., also face plate and drill press table, lots of 200 lbs.....	6.
	Lathe, Planer and Shaper Steel Turning Tools and Chisels, 100 lbs., lot.....	5.
	Milling Mch. Arbors 28 & 32" long, for both.....	15.
	Pipe Folder, 32" hand power for 24 gauge.....	25.
	Pipe Machine, Eaton-Cole-Burnham 1" to 4".....	225.
	Pipe Machine, Eaton-Cole-Burnham 2 1/2 to 8".....	450.
	Salamander for Coke heating, inside dimensions 22"x22"x24", 38" high. Good as new.....	15.
	Saw, Glem Cold, 22" dia., esp. 6" rd.....	150.
	Swaging Machine, Excelsior, cap 3/16".....	75.
	Vises, 6" Jaw Machinist Bench, plain jaw and plain base, some swivel base, each.....	\$7.50.

RUSSELL MACHINE CO., 1447 Oliver Building **Pittsburgh, Pa.**

FOR SALE
Pond Works Equipment

An exceptional opportunity for factories having 220 v. Direct Current

LATHES

- 11"x 5' Blount Speed Lathes.
 13"x 6' Blount Speed Lathes.
 18"x 6' LeBlond Q. C.
 18"x 8' LeBlond Q. C.
 21"x 8' LeBlond Heavy Duty.
 25"x 10' LeBlond Heavy Duty.
 28"x 16' Pond Q. C.
 30"x 14' Pond Q. C.
 30"x 6' Pond Q. C.
 35"x 12' Pond Q. C.
 36"x 12' Pond, Heavy, Taper.
 36"x 16' Pond Q. C.
 42"x 17' Pond Q. C.

TURRET LATHES

- 2" x 28" P. & W. Bar Feed.
3" x 36" P. & W. Bar Feed.
18" Libby, 3-jaw chuck.
21" x 8" LeBlond Univ. Turret.
21" Pond Rigid Turret.
28" Pond Rigid Turret.

POND PLANERS

(All Reversing Motor Drive)

- 30" x 30" x 6'—2 heads.
 30" x 30" x 8'—2 or 3 heads.
 30" x 30" x 12'—2 or 4 heads.
 36" x 36" x 8'—3 heads.
 36" x 36" x 10', 12', 14', 16', 18", 24",
 and 28"—4 heads.
 42" x 42" x 18", 26", and 30'—4 heads.
 48" x 48" x 16"—4 heads.
 48" x 48" x 30'—4 heads.
 50" x 36" x 16' and 22'—2 heads.
 54" x 54" x 22'—4 heads.
 96" x 72" x 42"—4 heads.
 120" x 120" x 46"—4 heads.

SHAPERS AND SLOTTERS

- 26" Acme Shaper.
 15" Bement Slotter.
 18" Putnam Slotter, Old Style.
 22" Bement Slotter.

DRILLS

- Allen High Speed, Single Spindle.**
6' Niles Semi-Universal Radial.
6' Pond Plain Radial.
8' Pond Plain Radial.

Write for a copy of List No. 3

NILES-BEMENT-POND CO.

General Offices—111 BROADWAY, NEW YORK, N. Y.

Birmingham, Brown-Marks Bldg.
Boston, 125 Purchase St.
Chicago, 33 South Jefferson St.
Cincinnati, 338 West Fourth St.
Cleveland, 730 Superior Ave., N. W.
Detroit, 3838 Cass Ave.
Los Angeles, 454 East Third St.

Philadelphia. 2415 Chestnut St.
Pittsburgh. 1115 Empire Bldg.
Rochester. 552 East Main St.
St. Louis. 516 North Third St.
San Francisco. 917 Howard St.
John Bertram & Sons Company.
Dundas, Ontario, Canada

Used Machine Tools

- | | |
|---|---------|
| 1—Cleveland Horizontal Boring Machine, 24" diameter bar, speed box drive with friction clutch pulley..... | \$ 750. |
| 1—18"x9' Chard Quick Change Lathe, 3-step cone, double sliding back gears, double friction countershaft, turret tool post and steady rest..... | \$ 400. |
| 1—17"x6' LeBlond Lathe with 3-step cone, double friction back gears, quick change, without lead screw, with connected compound and plain rest, single friction countershaft..... | \$ 400. |
| 1—30" Gisholt Screw Cutting Boring Mill, with change gears, 4-step cone, back gear, double friction countershaft..... | \$ 550. |
| 1—No. 25 Foote-Burt Heavy Duty Drilling Machine..... | \$ 500. |
| 1—No. 3 Baker Bros. Keyseating and Slotting Machine, capacity to cut keyways 24" in length by 3" in width, or with chamber hub and extended cutter bars will keyseat 36" long; any work up to 72" in diameter can be chuckied with the column in the outside position; largest diameter of cutter bar used 2-7/16"..... | \$ 700. |
| 1—No. 1 Barrett Horizontal Boring Machine, 3 $\frac{1}{2}$ " bar, with two Star facing heads and countershaft..... | \$ 825. |

THE E. A. KINSEY CO., 335 West Fourth Street, **CINCINNATI, O.**
BRANCHES: INDIANAPOLIS, IND., HAMILTON, OHIO, DAYTON, OHIO,
LOUISVILLE, KY., COLUMBUS, OHIO

HI-GRADE SLIGHTLY USED EQUIPMENT With as good as new money back guarantee

PARTIAL LIST

- Drill Presses**
20⁸ 4-Spindle Rockford.
No. 17 4-Spindle Foote-Burt.
No. 310 Baker.
3⁷ Canti-Bickford Radial.
4¹ American Sensitive Radial.
Grinders
6 x32 Norton Plain.
10x36 Norton Plain.
10x50 Norton Plain.
No. 10 Brown & Sharpe Plain.
Mills
No. 2 Hendey Plain.
No. 3 Cincinnati Plain.
28⁸ Cincinnati Duplex.
13-B Brown & Sharpe Production
2-Y Brown & Sharpe Plain.

- Automatics**
7 $\frac{1}{2}$ "—1 $\frac{1}{4}$ " Cleveland Model A.
2 $\frac{1}{2}$ "—3 $\frac{1}{4}$ " Cleveland Model A.

- Turret Lathes**
1 $\frac{1}{2}$ " Acme B. G., Friction Head.
24⁸ Gisholt.
24⁸ Bullard Vertical.
No. 6 Warner & Swasey.
No. 4 Millholland Universal.

- Miscellaneous**
No. 12 Barber Colman Hobbers.
F-24 Badger Single End Punch.
No. 3 LaPointe Double Broach.
Taft-Pearce Thread Miller.
36" Gisholt Boring Mill.

Send us your inquiries

Mid-West Machine Tool & Supply Co.
DAVENPORT, IOWA

REMANUFACTURED (ORIGINATED BY US) MACHINE TOOLS

REG. U. S. PAT. OFF.

Largest stock of high grade machine tools in America. All principal makes and models. Every one guaranteed. Save 25 to 50 per cent on prices.

This is only a partial list. Write for price on any tool you need, whether listed below or not.

IMMEDIATE DELIVERY

LATHES

- 14-20"x 8' LeBlond.
- 5-20"x12' American.
- 5-20"x16' American.
- 20-21"x10' LeBlond.
- 10-24"x11' Cisco.
- 1-24"x12' Reed Prentice Grd. Hd.
- 3-24"x12' Providence.
- 1-24"x15' Chard.
- 7-25"x10' LeBlond.
- 10-25"x12' LeBlond.
- 24-26"x10' Canada.
- 10-26"x18' Bridgeford.
- 2-30"-34"x20' American.
- 18-32"x12' Pittsburgh.
- 1-36"x35' Putnam geared head.
- 4-36"x30' Pittsburgh Geared Hd.
- 3-36"x37' Niles Bement Pond.
- 1-51"x20' LeBlond.
- 1-56"-64"x18' Johnston.

MILLERS

- 5-No. 2 Kempsmith.
- 1-No. 3 Kempsmith Universal.
- 2-No. 2 Rockford.
- 1-No. 2B Rockford Universal.
- 2-No. 28 Ohio.
- 6-No. 2-B Hvy. Brown & Sharpe.
- 4-No. 3 Kempsmith.
- 9-No. 3-B Hvy. Brown & Sharpe.
- 2-No. 4 Cincinnati.
- 2-No. 4 LeBlond.
- 3-No. 4-B Becker.
- 2-No. 3 Cincinnati Vertical.
- 2-No. 4 Cincinnati Vertical.
- 4-No. 5-C Becker.
- 3-No. 6 Becker.

PLANERS

- 1-24"x24"x 6 American.
- 2-36"x36"x10' Bickett.
- 1-36"x36"x12' Woodward & P.
- 3-36"x36"x18' Cincinnati.
- 3-42"x42"x16' Rockford.
- 1-72"x56"x36' Cincinnati.

PRESSES

- 1-No. 34 Toledo Solid Back.
- 1-No. 69 Stoll Geared.

BORING MILLS—Vertical

- 2-24" Bullard "New Era."
- 1-42" Gisholt.
- 1-52" Gisholt.
- 1-60" Pittsburgh.
- 1-62" King.
- 2-72" Cincinnati.
- 7-72" Gisholt.
- 1-84" King.

BORING MILLS—Horizontal

- 1-3" Foote-Burt.
- 1-No. 0 Giddings & Lewis.
- 1-No. 1½ Giddings & Lewis.
- 1-No. 3 Rochester Floor Borer.
- 1-6" Detrich & Harvey Floor Borr.

DRILL PRESSES

- 1-20" Barnes all geared.
- 2-24" Barnes all geared.
- 2-No. D-2 Colburn.
- 1-No. 24 Foote-Burt.
- 1-No. 25 Foote-Burt.
- 5-No. 310 Baker.
- 1-3-spindle Henry & Wright.

RADIAL DRILLS

- 1-5' Niles-Bement-Pond.
- 2-7' Western.

GRINDERS

- 3-6"x18" Landis.
- 12-10"x36" Norton.
- 3-10"x72" Norton.
- 3-12"x26" Modern.
- 11-14"x50" Norton.
- 1-18"-30"x96" Norton Gap.
- 1-20"x96" Landis.

Our Guarantee: Your money back if you return a machine within thirty days, freight prepaid.

HILL, CLARKE & CO. of CHICAGO, 649 W. Washington Blvd.,
CHICAGO, ILL.

Telephone Haymarket 7660

HS-L-GLI

Cable Address "Remand"

Guaranteed Rebuilt Machine Tools

30"x12' Heavy Duty LeBlond Lathe, qk. change, double back gear.

Price \$1400.

36"x36"x14' American Planer.
Price \$850.

No. 3B Brown & Sharpe Milling Machine, single pulley drive.
Price \$750.

No. 3 Cincinnati Milling Machine, single pulley drive.
Price \$850.

36" Fellows Gear Shaper.
Price \$700.

No. 4 LeBlond Milling Machine, Universal, cone dr., double back gear.

Price \$850.

18"x8' Barker Lathe, loose change gear.
Price \$350.

16" Barker Back Geared Crank Shaper.
Price \$365.

24" Bullard Rapid Production Turret Lathe.
Price \$800.

18" Barker Single Geared Crank Shaper.
Price \$200.

WM. BARKER & CO.
COVINGTON, KY.

MANUFACTURERS' Surplus Machine Tools— Rebuilt

Very Low Prices on Quality Tools

CRANE— 10' & 12' span with 2 & 3 ton hoists, comp.

DRILLS— 24" Cincinnati cone drive upright.

14" Sensitive \$30; 15" sensitive.

GRINDERS— 14"x72" Queen City plain cylindrical.

8" or 10"x30" Queen City plain cylindrical.

LATHES— 20"x10" LeBlond, cone and belt shifter.

18"x 8' LeBlond, cone and belt shifter.

14"x 6' LeBlond, cone and belt shifter.

3"x36" Jones & Lamson bar machine.

3"x36" Jones & Lamson chucking machine.

2 1/4"x24" Jones & Lamson chucking machine.

MILLERS— No. 3 S. P. D. LeBlond, plain, & vertical attachment.

No. 2 Cone LeBlond, plain.

PLANERS— 32"x32"x16" Gray (2 rail heads.)

30"x30"x16" American (2 rail heads.)

26"x26"x12" Whit-Blais (2 rail heads.)

Various sizes Queen City back geared Crank

Shapers and plain Cylindrical Grinders

Queen City Machine Tool Co., 1401 Sycamore St.
Cincinnati, Ohio
We are not Second-Hand Dealers

Lowest Prices! and The World's Greatest Stock!

LATHES

16"x 8' Bradford, q. c. g.
18"x 8' Lodge & Shipley, s. p. d.
21"x12' LeBlond rapid production.
30"x16' LeBlond, q. c. g.

PLANERS

22"x22"x 5' Gray.
30"x30"x10' Cincinnati.
36"x36"x12' Powell.

SHEARS

24" throat Morgan double end, capacity 5/16"x24".
Type RT Fels I-beam, 18" cap.
No. 2 Bethlehem rotary, 3/16" cap.
20" Mackintosh bloom.
24" Chicago Foundry Co. alligator.
5" Carlin alligator.

GRINDERS

20"x54" Diamond wet surface.
16"x58" Landis crankshaft.
16"x66" Landis universal.
16"x36" Landis universal.
10"x48" Landis universal.
12"x36" Fitchburg plain.
No. 224 Diamond cyl. roll. plain.

AIR COMPRESSORS (BELT)

58' Curtis vertical.
67' Inversoll horizontal.
275' & 350' Gardner.
46' Sullivan.
950' Laidlaw.
1750' L. D. & G.

POWER HAMMERS

80-lb. & 500-lb. Bradley vertical.
500-lb. Beaudry.

STEAM HAMMERS

600, 800, 1000 and 1500 lb. sgl. frame.
2000, 2500, 4000, 6000 double frame
Bement and Chambersburg.

BOARD HAMMERS

400, 600, 800, 1000, 2000, 2500 & 3000 lb.
Pratt & Whitney, Bliss, Union and
Chambersburg.

COLD SAWS

90" Newton cutting-off.
36" Newton cutting-off.
20" Newton cutting-off.

LOCOMOTIVES

10"x14" Baldwin 36" gauge.
10"x16" Vulcan 36" gauge.
11"x14" Vulcan 36" gauge.
18"x24" Baldwin 4-wheel saddle tank.

BOILERS & SMOKE STACKS

250 H. P. Standard water tube,
200 lb. pressure.
250 H. P. Wickes vert., 200 lb. pres.
150 H. P. hor. ret. tub., 100 lb. pres.
40 H. P. Firebox Boiler, 90 lb. pres.
500' of 18" Stack.
72' of 36" with cast iron base and
ladder.
130' of 48".
140' of 60".

MISCELLANEOUS

Sull. Dia. Pros. Drill. 2" core.
10-ton Morgan Elec. Crane, 73' span.
15-ton Industrial Locomotive Crane,
38' boom.
96-ton Bucyrus R. R. Type Steam
Shovel.
70-ton Bucyrus R. R. Type Steam
Shovel.
No. 6 American Can Co. O. B. I.
Punch Press.
72" Colburn Vert. Boring Mill, 2 hds.
16" Bettis Slotter.
No. 7-H Becker Lincoln Type
Miller.
No. 2½ Hendey Lincoln Type Miller.
No. 2 Wood Tilted Turret Lathes,
1" capacity.
No. 4-B Williams & W. Bulldozer.
2" Curtis Pipe Threading Machine.
6" Saunders Pipe Threading Mch.
7500-30,000 Gal. Storage Tanks.
5000-Gal. Water Pressure Tank 75 lb.
pressure.
5000-Gal. Oil Tank Cars.

*Machinery Bulletin No. 209, describing our
complete stock, mailed free on request.*

HARRIS BROTHERS COMPANY
35th & Iron Sts., CHICAGO

FOR SALE BY
The Co-Operative Machinery Co.

7514 INDIANA AVE., CLEVELAND, OHIO

Used Porter-Cable Mfg. Lathe, 9"x14", complete with counter-shaft, good condition	\$ 250.
Used Porter-Cable Mfg. Lathe, single pulley drive, high speed, practically new	275.
Used No. 12 B. & S. Plain Production Miller, good condition	190.
Used 25" Snyder Heavy Pattern Sliding Head Drill, power feed to head. This machine is practically new	350.
Used No. 44 Crosby C Type Punch Press, bolster plate 21"x30", flywheel 33 $\frac{1}{2}$ "x4", good condition	250.
No. 1 Garvin Screw Machine, 8" cap. thru collet, prac. new	195.
Used No. 6 Foster Screw Mch., motor driven, 220 volt, 3 phase, 60 cycle, bar feed & several hundred dollars worth of extra equipment. Good shape. Can be inspected under power.	675.
Used Waterbury-Farrel Screw Press, distance between housings 15", hole in bed 8", greatest distance bed to ram 15"	225.
No. 2 LeBlond Plain Heavy Duty Mill, late type machine, good condition, may be inspected under belt	625.
No. 3 O. B. I. Toledo Press, practically new	325.
Used 14"x8" Carroll-Jamieson Lathe, qk. ch. gr., good cond.	325.
Used 13"x8' Willard Lathe, semi-quick change, good condition, can be inspected under belt	250.
J. A. Fay Combination Saw Table, A-I condition	225.
American two-spindle Shaper, good condition	150.

This Is Only A Partial List

Open Side Planer

30"x30"x18' Cleveland
2 Rail Heads
1 Side Head
Belted Motor Drive

Price - - \$3000.

Marshall & Huschart Machinery Co.
17 So. Jefferson St., Chicago, Ill.

Surplus Equipment at Plant of the Crown Cork & Seal Co., Baltimore, Md.

This surplus equipment has been placed in my hands for sale, on account of changes in production methods. Some are machines of the latest type. Some are still under belt and can be seen in operation. Each item is just as taken out of service and is in good running condition. Will sell at considerably below market prices.

DRILLS

- 1—No. 3 D. Colburn heavy duty, capacity 3" through the solid single pulley drive, quick change feeds and compound table.

GRINDERS

- 1—Landis 10"x24" Universal Grinder. Now in operation; complete with overhead countershaft.
2—No. 3 Brown & Sharpe Universal Cutter, Tool & Reamer Grinders.
1—Norton Emery Wheel Stand, 14" Wheels.
1—No. 4 J. G. Blount Emery Wheel Stand.

GEAR CUTTERS

- 1—Gould & Eberhardt 24" Gear Cutter, automatic, for spur, bevel and face gears. Capacity 24"x8" with arbor support. 36" capacity without arbor support. This is the modern vertical cutting type.

MILLING MACHINES AND PROFILERS

- 1—No. 2 Brown & Sharpe, plain, with back gears, belt feed.
1—No. 13-B Brown & Sharpe Heavy Modern Manufacturers type.
1—U. S. Mfg. Co. Hand Miller.
2—2½" Bilton Automatic Millers.

TURRET LATHES

- 1—24" Gisholt slightly used, modern, with rapid power traverse, 5" hole through spindle, arranged for motor drive.
1—Jones & Lamson 3½"x36" Flat Turret Lathe, geared head, with equipment for bar work. High serial number.
3—No. 4 Bardons & Oliver Screw Machines, with power feed turrets.
3—14" Bardons & Oliver Turret Lathes for chuck work, with 8" turrets.
2—14" American Engine Lathe, quick change, equipped with turret on 8' bed.

MOULDING MACHINES

- 1—Tabor roll-over Moulding Machine.
3—Champion Moulding Machines.

MOTORS

- 2—7½ H. P. Westinghouse, 115 Volts, 835 RPM., Serial Nos. 879069 & 889079.
1—15 H. P. Westinghouse, 115 Volts, 1100 RPM., Serial No. 975361.
1—Industrial Heating Units, 50 new and 50 used, General Electric, for 350 Fahr., contained 7½ turns, Type A H G C-2. Amperes 86, Volts 110.
7—Westinghouse Oil Circuit Breakers. New. Type F-3, 500 Amperes, 13200 Volts, Style S-C, 899032.

MISCELLANEOUS

- 2—24" Attrition Mills, made by Surout Waldron & Co., Muncy, Pa. These machines were used to pulverize or grind cork, but can be used for almost any grinding operation.
1—Hack Saw, heavy, made by West Haven Mfg. Co.
1—Hand Hydraulic Jack.
1—Bishop & Babcock Carbonator.

*For more detailed description and price,
F. O. B. Cars Baltimore, wire or write to*

A. F. STRAFER, 30 Church Street,
New York, N. Y.

Write for lists of Surplus Equipment at other plants

POWER PRESSES

EXCLUSIVELY

TOGGLE PRESSES

- 3—No. 1½ Bliss, Friction Clutch.
1—No. 4A Bliss, F. C. Tie Rod.

STRAIGHT SIDE PRESSES

- 3—No. 55 Toledo, geared.
3—No. 55½ Toledo, geared.
2—No. D201 Ferracute.

EMBOSSING PRESSES

- 3—No. 666 Toledo, 1000 tons.
1—No. EG 54 Ferracute, 400 tons
1—No. 5 Howard, 75 tons.

ADJUSTABLE BED PRESSES

- 5—No. 2A, 3—No. 3A Bliss.
6—No. 83 Consolidated.
Nos. 41 & 42 Toledo.

DOUBLE CRANK PRESSES

- 1—No. 9A Z. & H. Tie Rod,
37" between uprights.
3—No. SG 52 Ferracute, geared,
40" between uprights.
1—No. 95½ Bliss, geared 42½"
between uprights.
1—Zeh & Hahnemann flywheel,
open bk. type, bed 41½" x 16",
center back 9".
2—Leffler, flywheel, tie rod, 36"
between uprights, 8000 lbs.
2—No. 202A Toledo, Gap.

Over 1200 Presses in Stock

Write for New Catalogue

Joseph HYMAN & Sons

Richmond St. and Erie Ave.,

Philadelphia, Pa.

Good Machinery Bargains:

28" Gould & Eberhardt B. G. Crank Shaper.....	\$ 900.
No. 12 Barber-Colman Gear Hobber.....	950.
18" x 96" Norton Plain Cylindrical Grinder.....	1100.
Automatic Mcne Co. Threading Mcne., very fine cond., complete.....	450.
Six-Spindle New Britain Automatic, 1½" x 7".....	1200.
30" Cincinnati-Bickford Radial, 90%.....	795.
36" x 16½" Niles-Bement-Pond Lathe, with motor.....	1350.
42" x 20" Niles Triple Geared Lathe.....	1200.
48" x 28" Niles Triple Geared Lathe.....	1575.
6' Niles Universal Radial Drill.....	1100.
12" x 5' Shepard Q. C. Lathe, with milting attachment. \$150.	Norton running balancing Mcne.
18" x 6' Fay & Scott Lathe, \$175.	No. 4 Verdin Inclinable Press.
42" Bullard Boring Mill.	No. 20 Bliss Inclinable Press.
26" x 26" x 6" Gray Planer, 1 head.	No. 6 Rockford Geared Press.
32" x 32" x 12" Pond Plr. 2 hd \$400.	50 Ton Lucas Forging Press.
3" Lucas Horizontal Boring Mill.	Style A Long & Alstatter Punch & Shear, 2½" x 1".
(3) 2B Brown & Sharpe Millers.	28" Aurora Drills.
Pratt & Whitney Thread Miller.	Barnes 4-spindle Drill.

More Than 300 Other Items Of Machinery In Stock

Norton-Broadway Machinery Co., Cincinnati, Ohio

Complete Liquidation Sale Of The Penfield Axle Company

We are discontinuing business and have for sale all of our Machinery, Motors, Precision and Laboratory Instruments, Machine Shop Accessories, Miscellaneous Factory Equipment, Manufacturing Supplies and Materials, Small Tools, Grinding Wheels, Office Equipment, Etc. Copy of Stock List with prices and Photographs of each item will be mailed on request.

MILLING MACHINES

No. 2-B Milwaukee Universal (not used 25 hours.)	No. 6 (New) Whitney Hand.
No. 3 Kempsmith Plain.	No. 1 Bristol Hand.
No. 2-A Hendey Norton Plain.	No. 3 Lees Bradner Thread Mills, (2).
No. 1 Kempsmith Plain.	No. 13 Brown & Sharpe Mfg. Type.
No. 4-B Becker Vertical.	No. 22 Kempsmith Pl. Linc. Type, (2).
	Beaman & S. Front Axle Mills, (2).

GEAR CUTTERS

No. 12 Barber-C., 28" hole thru sp., (2)	No. 5-A Lees Bradner Gear Hobber.
--	-----------------------------------

GRINDERS

10"x50"-10"x36"-8x32" Norton Plain.	No. 3 Rivett Internal.
10"x36" No. 2 Landis Universal. Greenfield Univ. Tool & Cutter, (2).	Dumore Electric Tool Post Grinder. Wheel Hds. for No. 70 Heald Int, (2).

DRILLING MACHINES

Three ft. American Radial.	10" W. F. & J. Barnes stationary hd.
24" Superior Stationary Head.	W. F. & J. Barnes 3-sp., 9" Overhang 2-spindle Francis Reed sensitive.
22" W. F. & J. Barnes sliding head.	U. S. Electric Bench Type, 6"
22 1/2" W. F. & J. Barnes 3-spindle.	Overhang, (2).
20" W. F. & J. Barnes stationary hd.	No. 10 Baush Sixteen Spindle.
20" W. F. & J. Barnes 3-spindle.	

LATHES

24"x12" New Haven, semi q. c.	14"x 6' Hendey, taper and draw-in attachments.
18"x 8' Hendey, taper, relieving, draw-in attachments.	11"x 4' Blond Speed Lathe.
18"x 8' American, quick change.	3 1/2"x60" Lo-Swing.

PRESSES

No. 4 Bliss, Stiles type.	No. 2 Foot Press.
---------------------------	-------------------

SCREW MACHINES-TURRET LATHES

24" Gisholt, (2) and 20"-22" Libby, Jones & Lamson.	No. 7 2" Bardsons & Oliver.
	1 1/2"x9" Acme.

MISCELLANEOUS

24" American Shaper.	No. 2 Garvin Tapping Machine.
Rhodes Shaper and Slotter.	Toledo type 7-C Butt Welder
No. 2 J. N. Lapointe Broach.	9" Bliss Drop Press or Belt Hammer
No. 2 Knowles Broach.	8"x36" Brown & S. Bench Centers.
No. 6-A Potter & J. Chucking Mch.	No. 1 Root Rotary Pressure Blower.
100 lb. Bradley Upright Helve Ham.	2" Holton Cut-off Machine.
No. 2 Grant Riveter.	Prestolite & Oxweld Welding Torch
No. 2 Whiton Centering Machine.	Bausch & Lomb Photomicrographic Camera.
No. 1 Whiton Centering Mch., (2).	Photomicrographic Camera.
8"x8" Bury Air Compressor, (2).	Prestwich Fluid Gauge.

Bellevue, Brown & S., Gilbert & Barker, Stewart and Tate-Jones Furnaces.

Micrometers, Snap Gauges, Thread Gauges, Plug Gauges, Lathe Chucks, Drill Chucks, "C" Clamps, Air Hammers, Die Heads, Vises, Tool Steel, Strip Steel, Tubing, Cold Rolled Steel, Drills, Reamers, Milling Cutters, Emery Wheels, etc.

Penfield Axle Company, Peru, Ind.

We Want to Buy A USED Ingersoll Milling Machine

60"x36"x16', with adjustable rail, two heads on rail, one horizontal head on front side, with power feed. Working surface of table at least 20 feet long by 54 inches wide. Machine must be in good working order.

S. A. Woods Machine Co.
Boston, Mass.

Send Us Your Inquiries

We are always glad to forward a memo of any machinery or equipment for which you are in the market to all of our advertisers without charge.

The Blank Form

enclosed in this book is for this free service, and you are invited to make use of it without any obligation. Or write out your needs on your own letterhead.

The Blue Book has been the means of bringing many buyers and sellers together, to their mutual profit and satisfaction.

HITCHCOCK PUBLISHING CO.
508 S. Dearborn St., Chicago

Punch Presses

- No. 169 $\frac{1}{4}$ Toledo toggle press, strokes 26" and 14".
- No. 58 $\frac{1}{2}$ Toledo st. side tie rod frame, 14" stroke.
- No. 69 Stoll tie rod frame, geared, 8" stroke.
- No. 42 Robinson double crank, geared, 2" stroke.
- No. 20 Bliss inclinable, (2), 3" stroke.
- No. 2 R. & K. horn press, 2" stroke.
- No. 31 Toledo solid back press, 1 $\frac{1}{2}$ " stroke.
- No. 44 Adriance cam drawing presses (2).

Other Machines

- 14"x6' Hendey Lathes, tie bar head, quick change.
- 20"x10' American geared head, quick change.
- 21" Gisholt Turret Lathe, latest type.
- 51" Niles Vertical Boring Mill, two heads.
- 42" Bullard Vertical Boring Mill.
- 24" Bullard Vertical Turret Lathe.
- No. 3 Cincinnati Hi-power Vertical Miller.
- No. 3 Cincinnati Plain Millers, (3).
- 5 $\frac{1}{2}$ -7 $\frac{1}{2}$ " Cleveland model A auto. screw machines, serials 27360 to 30560.
- 16"x48" Landis Crank Pin Grinder, latest type.
- 36" Cincinnati Back Geared Drill, tapping attachment.

Many others. Send for illustrated List.

**58"x56"x14' Gorton Planer, 4 heads, 35 H. P.,
General Electric, reversing motor drive, NEW,
NEVER USED, at half price of a new one.**

A. D. White Machinery Co.
108-114 N. Jefferson St., CHICAGO, ILL.

Forging Machinery

Upsetters:

1", 1½", 2", 2½", 3", 3½" and 4".

Bulldozers:

Williams-White, No. 1, No. 2, No. 3, No. 4, No. 5, No. 7.

Single and Double End Punch Presses:

All capacities and depths of throat.

Shears:

Robinson and Rea Alligator, cap. 5" round.

Other Alligator and Bar Shears, capacities 1" to 5".

Threading Machines:

Single and double spindle Landis and Acme, 1" to 3".

Miscellaneous:

No. 2 Ajax Hot Saw and Burrin Machine.

No. 1, No. 1½ and No. 3 Ajax Forging Rolls.

No. 19-53" Besly Vertical Spindle Disc Grinder.

No. 1 Cleveland Horiz. Bending & Straightening Machine.

10x10 Curtis Air Compressor.

30-ton Lucas Forging Press.

6, 8 and 10-spindle Nut Tappers, Acme and National.

Donahue Steel Products Co.

204 N. Jefferson St., Chicago, Ill.

Are You Thinking—

Of installing a Radial Drill? If so, the following machines are REAL bargains:

1-2½' Standard type, heavy duty, MUELLER radial drill, gear drive.

1-3' Standard type, heavy duty, MUELLER radial drill, gear drive.

1-4' Standard type, heavy duty, MUELLER radial drill, gear drive.

Prices will arouse interest

Write and Satisfy yourself

The Mueller Machine Tool Company

Radial Drills and Lathes

ESTABLISHED 1902

CINCINNATI, O.

JUST PURCHASED

(these two columns)

The Following Batch of Good Tools Which a Large Machine Tool Manufacturing Corp. Had Been Holding as Reserve—Equipment Not Worn Out, Not Obsolete, But Reserve.

- 1—24"x24"x6' Whitcomb Planer, 1 head, second belt drive.
1—24"x24"x8' Whitcomb, ditto.
5—24"x24"x10' Whitcomb, ditto, second belt.
2—24"x24"x10' Whitcomb, ditto, 2 hds.
2—26"x26"x6' Gray Planer, 1 head, like new.
1—24"x24"x6' Powell Planer, 1 hd.
5—30"x30"x12' Pond Planers, 2 hds., including elec. equipment, reversing motor drive, 230 volts, d. c.
3—NEW 30"x30"x12' Pond Planers, 2 hds., including elec. equipment, reversing motor drive, 230 v., d. c.
1—42"x42"x26' Pond Planer, 4 heads, including elec. equipment, reversing motor drive, 230 volts, d. c.
2—No. 5 B. & S. Vert. Millers, A1.
1—No. 4 Cincinnati Vertical Miller.
1—No. 2 LeBlond Plain Miller.
1—No. 2 LeBlond Universal Miller.
1—No. 3 LeBlond Universal Miller, excellent.
1—No. 9 Belt Feed LeBlond Miller.
1—No. 2 P. & W. Plain Miller, special cam cutter, fixture on table.
2—No. 12 P. & W. Lincoln Millers.
8—5" P. & W. Automatic Millers.
4—No. 1 P. & W. Power Millers.
6—No. 2 P. & W. Column Power Millers (2), with long tables.
1—No. 4 Brown & S. Plain Miller.
1—No. 5 Brown & S. Plain Miller.
2—No. 2 Cincinnati Vertical Millers.
2—4"x12" P. W. Thread Millers.
1—6x132" P. & W. Thread Miller.
1—4x30" P. & W. Cylindrical Grinder.
1—P. & W. Deep Hole Drill Grinder.
1—No. 25 B. & S. Cutter Grinder.
1—Bryant Chucking Grinder.
1—Vaukee Drill Grinder.
1—Washburn Drill Grinder.
3—Standard Wet Tool Grinders.
1—No. 2 Besly Disk Grinder.
3—No. 16 Blanchard Surface Grinders, floor motor drive.
- 1—Taylor & Fenn Wet Tool Grinder.
1—P. & W. Special Contour Cutter Grinder for grinding form tools.
1—Brown & S. Wet Tool Grinder.
1—Cincinnati Cutter Grinder.
1—No. 2 P. & W. Horiz. Traverse Drill.
2—4 spdl. Allen Ball Bearing Drills, 12" overhang.
3—3 spdl. Allen Ball Bearing Drills, 12" overhang.
4—32" Aurora Drills, back geared, two with tapping attachment.
3—26" Barnes Upright Drills, plain type, sliding head.
1—42" Cincinnati-Bickford Drill, back geared, tapping attach.
1—5" Niles Semi-Universal Radial.
1—6" Niles Full-Universal Radial.
1—Taylor & Fenn High Speed Drill.
37—10x5" P. & W. Toolmakers Lathes, taper, draw-in.
3—14x6" P. & W. Lathes, pan bed, taper attachment.
1—16x6" P. & W. Lathes, with special circular table.
1—21x10 LeBlond Lathe.
1—Special P. & W. Bench Lathe for Internal Grinding.
3—No. 2 P. & W. Screw Shavers.
1—P. & W. 4" Centering Machine.
1—No. 24 P. & W. Special Double Head Centering Machine.
1—P. & W. Cam Cutter for peripheral cams.
1—No. 14 2-spdl. Profiler, nearly new.
3—Nutter & Barnes Cut-Off Saws, 8" capacity.
1—16" Stockbridge Shaper, cone.
5—No. 5 Greenerd Arbor Presses.
1—No. 3 Greenerd Arbor Press.
1—Barnes Horiz. Boring Mill, 7" table.
1—Dwight Slate Marking Machine.
1—Thompson Upright Polishing Stand.
2—18" Gorton Disk Grinders.

Simmons Machine Tool Corp.

NEW YORK
149 Broadway

ALBANY
1212 Troy Road

BUFFALO
88 Exchange St.

After our Inventory is a good time to buy

Air compressor, 1600 cu. ft. cap G. E., complete with 20 h. p. motor a. c.
Bending roll, 110" H. & W. cap. 16 gauge.
Bolt cutter, No. 3-1" Capitol double head auto.
Boring mill, 30" Colburn vert., with 3-jaw combination chuck.
Boring mill, 36" Bullard "New Era" vertical, with side head and 4-jaw chuck.
Drill, slid.hd., 36" Snyder, comp.
Drill, sensitive, No. 14 Avey 4-spindle, h. s., b. b.
Drill, radial, 5' Dreses plain.
Gear shaper, 36" Fellows.
Gear cutter, No. 5-48"x10" B. & S. auto. (spur gears only).
Grinder, plain, 12"x36" Modern.
Grinder, surface, vertical No. 12 Pratt & Whitney.

Grinder, universal, No. 1, 10x24" Brown & Sharpe.
Hammer, bd. drop, 1200 lb. Bliss.
Lathe, 29"x24" Schumacher & Boye, arrgd. for motor drive.
Miller, No. 2 Clev'l'd sgl.pul.dr.
Miller, No. 3 Cincinnati, vert., single pulley drive.
Planer, 30"x30"x8" Cleve., 2 hds.
Press, No. 512 Niagara s.s., s.b.g.
Riveter, 30-ton Hanna vert., 75" reach, 18 gap, cap. 7/16" cold or 1" hot rivets.
Saw metal, No. 12-B Higley.
Shaper, 24" Potter & Johnston, with revolving table.
Shear, 8" E. & K. sq.shr., cap. 10 g.
Slotter, geared, 25" Niles.
Turret lathe, No. 4 W. & S., geared friction head.
Turret lathe, 18" Libby, sgl. pul. dr., arrgd. for belted motor dr.

THE E. L. ESSLEY · MACHINERY · CO.

551 W. Washington Blvd., Chicago.

78-80 W. Water St., Milwaukee

MACHINE TOOLS NEW AND USED

Prices Warrant Your Attention

14"x 6' American Lathes, q. c. g.
18"x 8' LeBlond Lathes.
18"x10' LeBlond Lathes, q. c. g., taper attachment.
34"x60" Lo-Swing Lathe, 2 carr.
2"x24" J. & L. 2-Sp. Tur. Lathes.
11" Gridley 4-Sp. Automatics.
3' American sensitive Radial Drill, taper attachment.
5' Pilton Bench Drills.
No. 1 Pratt & Whitney 2-spindle Deep Hole Drill.
5"x18" Ott Cyl. Grinder (NEW).
No. 120 Gardner Disc Grinder.
No. 10-18" Besly Disc Grinder.
No. C2 Becker Vertical Miller.
No. 1 B. & S. Universal (old style) Miller.
No. 2 P. & W. Pl. Head Miller.
4" P. & W. Spline Miller.
No. 25 Becker Plain Millers.
Miscellaneous tools, such as cutters, drills, reamers, magic chucks, emery wheels up to 26" dia., 3" face.

No. 1 Standard Hand Millers.
Wisconsin Hand Millers.
12" B. & S. Univ. Index Centers.
14" Cin. Univ. Index Centers.
10" Becker 3-sp. Index Centers.
14" Becker Plain Index Centers.
No. 4 1 Nazel Hammer, m. d., 10 h. p. motor.
No. 6 Fellows Gear Shapers.
12" Ingle Tooth Rounder.
12" H. & G. Threading Machine, with die head.

No. 2 Rockford b. b. Bal. Tools.
8" Reid Univ. Angle Fixtures.
MOTORS
1-1 h. p. 220 v., d. c., 1200 r. p. m.
1-2 h. p. 100/220-volt, 60-cy., 1-phase, 1750 r. p. m.
5-10 h. p. 230 v., d. c., 650 r. p. m.
4-15 h. p. 230 v., d. c., 350 r. p. m.
8-20 h. p. 230 v., d. c., 850 r. p. m.

BARBOUR, LOVE & WOODWARD, Inc.
Grand Central Terminal Bldg., NEW YORK CITY

Opportunity Knocks Again For the Conservative Buyer

Real Values in Machine Tools—

Lathes

- 1—48" x 21' Pond (Plainfield) with motor.
- 1—44" x 45" S W Putnam (Fitchburg) with motor.
- 3—32" x 12' Pittsburgh.
- 1—30" x 28' Pond (Plainfield) with motor.
- 1—24" x 12' Reed Prentice, geared head, m. d.
- 1—20" x 8' Reed.
- 1—18" x 8' Reed.
- 1—18" x 10' Schumacher & B., t. a.
- 2—18" x 8' Rockford semi q. c.
- 1—3½ x 84" Lo-Swing, 2 carriages.

Milling Machines

- 1—No. 2 Brown & Sharpe univ.
- 3—No. 2 Brown & Sharpe plain.
- 1—No. 2 Brown & Sharpe vertical.
- 1—No. 3 Brown & Sharpe plain.
- 1—Becker No. 5-B vertical.
- 1—Model AB Becker vertical.
- 2—No. 13-B Brown & Sharpe.
- 1—No. 2 Cincinnati, single pulley, plain.
- 1—U. S. hand miller.
- 1—Blomquist & Eck hand miller.

Grinders

- 1—No. 2 Brown & Sharpe cutter.
- 1—No. 2 Brown & Sharpe surface, with mag. chuck.
- 1—No. 2 Brown & Sharpe univ.
- 1—Worcester internal.
- 1—21 x 96 Norton plain.
- 2—10 x 50 Norton plain.
- 2—Landis crankshaft.
- 1—No. 6 Gardner disc.

Boring Mills—Vertical

- 1—10' to 16' Niles (Hamilton) with motor.
- 1—96" Niles.

Boring Mills—Horizontal

- 2—No. 2 Rockford horizontal.
- 1—Blomquist & Eck horizontal.
- 1—Blomquist & Eck (original) horizontal.

Planers

- 1—72" x 72" x 24" Detrick & Harvey, motor drive.
- 1—48" x 48" x 12" Putnam, 3 heads, with motor.
- 1—36" x 48" x 18" G. A. Gray, 2 hds. on cross rail, 2 side heads, 14 h. p. motor.
- 1—30" x 30" x 14" G. A. Gray, 2 hds. on cross rail, 10 h. p. motor.
- 1—24" x 24" x 6" G.A. Gray planer.

Presses

- 1—S. 304 Ferracute.
- 1—150-ton high speed steam.
- 1—No. 10½ Cleveland punch press.
- 1—78½ Bliss str. sided, 52000 lbs.
- 1—No. 26 Toledo cam press.
- 1—No. 78½ Toledo.
- 1—No. 68 Stoll, straight side.

Drill Presses and Radial Drills

- 2—D 2 Colburn.
- 1—26" Barnes.
- 1—34" Barnes.
- 1—3½" Fodick & Holloway radial.
- 1—6 spindle Allen sensitive.
- 1—36" Aurora.
- 1—12 spindle Harrington.
- 1—6 spindle Foote-Burt.
- 1—Moline Hole Hog.
- 1—6' Niles radial.
- 1—2½" Mueller radial.

Turret & Screw Machines

- 2—3½" Gridley sgle. spdl. autos.
- 2—Model B, 2" Cleveland autos.
- 3—Model B, 2" Cleveland automatics, New.
- 2—Model B, 1¼" Cleveland auto.
- 2—24" Gisholt turret lathes.
- 1—No. 6 Foster screw.
- 2—No. 4 Foster screw.
- 5—No. 4 Dreses turret lathes.
- 1—18" Gisholt turret lathe.
- 1—21" Libby turret lathe.
- 1—No. 6 Warner & Swasey turret.
- 1—No. 2 Brown & Sharpe screw.
- 1—No. 1 Brown & Sharpe screw.
- 1—No. 4 Woods tilted turret.

The EMPIRE MACHINERY EXCHANGE CO., Inc.
Offices and Warehouses: 2261 E. 14th St., Cleveland, Ohio

REAL BARGAINS

No. 4 LeBlond Hvy. Duty Plain Miller, with c. s.	\$1000.
No. 2½ LeBlond Heavy Duty Plain Miller, c. s.	750.
No. 1 Oesterlein Plain Miller, with c. s.	275.
16"x8' Ohio Lathe, Q. C. complete with all equip.	350.
11"x6' South Bend Lathe complete, like new.....	150.
2-¾" Stark Precision Lathes, each.....	150.
Serpentine Shear, 5' Throat.....	150.
Fay & Egan Variety Saw, complete, like new, 40x44 table.....	200.
36" Greaves & Klusman Band Saw.....	145.
20" Back Geared, Pwr. Fd. Champion Drill Press	85.
14" Gardner Motor driven Disc Grinder, 220-volt 60 Cycle 3-Phase.....	200.
Oil Separator, 1 bushel capacity, complete.....	65.

Rebuilt, Guaranteed Leather Belting
6¢ Per Inch Per Foot. Double Belt, Double Price.

**ELECTRIC MOTORS, A. C. & D. C.
Exhaust Fans—Blowers—Electric Drills**

All Our Motors Are Guaranteed

Midland Equipment Co., 612 W. Van Buren St., CHICAGO, ILL.

NEW MACHINERY

- 1—No. 4 Baush Multiple Spindle Drill, 30x46" head, twenty-two 2" spindles.
- 1—No. 536 Newton Horizontal Milling Machine, table 20"x8".
- 1—No. 25 Williams & White Bulldozer.

USED MACHINERY

- 1—Bement Niles Planer Type Slab Milling Machine, table 24"x8".
- 1—No. 536 Newton Horizontal Milling Machine, table 20"x8".
- 1—Midwest Centrifugal Pump, 500 gallons per minute, 210' head.
- 2—50 H. P. General Electric Vertical Motors for above pump, 1750 R. P. M., 60 cycles, 3 Phase, 440 volt.
- 12—Diamond Plow Share Grinding Wheel Stands.

Oliver Chilled Plow Works
535 Chapin St., South Bend, Ind.

New & Guaranteed Rebuilt Machine Tools

At Prices to Net You a Worth While Saving

BORING MILLS

- 1—Landis No. 35 horizontal.
- 1—Gisholt 42° vertical, 2 heads.
- 1—Colburn 48°, 2 heads.

DRILLS—Upright and Radial

- 5—Sipp single spindle.
- 12—New 24° Sibley, upright.
- 2—Baker No. 310.
- 20—Rockford Aurora and Barnes, 20°, 24° & 28° capacity.
- 2—New Turner No. 3, vert. tur.
- 1—Baush 6' Radial.
- 1—N.-B.-P. 96° Ridgeway, motor drive, plain Radial.

DRILLS—Multiple Spindle

- 1—Nasco No. 30, 12 spindle.
- 2—New Baush No. 3, 21 spdl.
- 1—New Baush No. 4, 56 spdl.
- 1—Fox, 6 spindle.
- 1—Moline, 4-spindle.
- 1—Avey No. 2, 4-spdl., pwr. fd.
- 1—Foote-Burt No. 17, 6-spdl.

SCREW MACHINES—Automatic

- 14—Gridley 4-spindle, $\frac{7}{16}$ ", $\frac{3}{4}$ ", $\frac{1}{4}$ ", $\frac{1}{2}$ ", $\frac{3}{4}$ ".
- 2—Gridley 4 $\frac{1}{2}$ ", $\frac{3}{4}$ " single spdl.
- 3—Gridley 2 $\frac{1}{2}$ ", 4-spindle.
- 8—Cleveland $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{2}$ ", A.
- 16—B. & S. Nos. 0, 2 & 6 full auto.
- 1—Cleveland 7 $\frac{3}{4}$ " A.
- 1—New Britain 1x5 bar mch.
- 10—New Britain Nos. 23, 24, 33, and 34.

MILLING MACHINES

- 1—No. 1 B. & S. No. 3 Univ.
- 1—Cincinnati No. 2 Universal.
- 2—Rockford No. 1 $\frac{1}{2}$; No. 2 PL.
- 1—LeBlond No. 2 $\frac{1}{2}$ Plain.
- 2—Brown & S. Nos. 2 & 4 Plain.
- 4—Cincinnati No. 4, s. p. d.
- 1—B. & S. No. 13-B Plain.
- 1—Cincinnati No. 3 vertical.
- 3—Becker Nos. 2H, 4B, Vertical.
- 6—Becker Nos. AB & SC, Vert.
- 1—Milwaukee No. 1 $\frac{1}{2}$ -B vert.
- 1—Cincinnati 48° Duplex.
- 2—New Garvin No. 2 Duplex.
- 1—Newton Duplex.
- 1—Van Norman No. 1/2 Duplex.
- 2—P. & W. 4 $\frac{1}{2}$ x12 Thread.
- 1—Lees-Bradner No. 8 Thread.

Also 500 other tools, such as Shapers, Presses, Bolt Cutters, Broaching Machines, Hot and Cold Saws, Punches and Shears, etc.

- 8—P. & W. 6x14, 6x48, 6x80 Thread.

30—P. & W. No. 4, Spline.

GEAR CUTTERS

- 15—Barber-Colman Nos. 3 & 12.
- 4—Hercules 8°.
- 7—Brown & S. 3x36; 3x26; 4x36.
- 1—Cincinnati No. 4-A, 4x48.
- 3—G. & E. No. 18-H.
- 1—G. & E. 60° spur.
- 20—Fellows Nos. 61, 6 & 615.
- 20—Gleason bevel, 6°, 11° & 18°.
- 1—Lees-Bradner No. 5A gear generator.
- 1—Ingle 12° tooth rounder.

PLANERS

- 7—Putnam 26x26x8", 2 heads.
- 1—W. & P. 24x24x10".
- 1—New Cleveland 36x36x8".
- 2—Gray 38x38x20, 3 hds., mtr. dr.
- 1—Putnam 48x48x12", 2 heads.

GRINDERS

- 1—Brown & Sharpe No. 4 Univ.
- 1—Brown & Sharpe No. 14 Plain.
- 1—Springfield 12x12x48 Vert.
- 4—Cincinnati No. 2, 12x36.
- 7—Norton 6x32, 10x36 & 16x36.
- 1—Fitchburg 12x54.
- 12—Bryant Nos. 20 & 6 chucking.
- 2—Bryant No. 15 double spindle.
- 28—Heald Nos. 65, 60 and 70.
- 3—Heald Nos. 255 & 260.
- 1—Van Norman No. 34.

TURRET and SCREW MCHS.

- 50—New Pratt & Whitney $\frac{7}{16}$ ", $\frac{5}{8}$ ", 1" wire feed.
- 10—W. & S. No. 1 Wire Feed.
- 1—Warner & Swasey No. 3-A.
- 4—Foster No. 1-B Universal.
- 1—New Foster No. 10 Turret.
- 4—Greenlee 2 $\frac{1}{4}$ "x26° Turret.
- 1—J. & L. 2-spindle Turret.
- 1—Libby 26°.
- 5—Foster No. 4 Screw.
- 1—W. & S. No. 4 Universal.
- 40—B. & S. Nos. 0, 1, 2, 6, w. f.
- 1—Acme Fox Monitor.
- 1—W. & S. No. 6 b. g., p. f.
- 2—P. & W. 1x14" screw.
- 6—Potter & Johnston No. 6A.
- 6—Potter & Johnston No. 5-A.

MOREY AND CO., INC. 408 Broome St., NEW YORK, N. Y.

Surplus Machinery For Sale

No. 8 Duplex Becker Milling Machine.
No. 1 Knight Milling and Drilling Machine.
20⁸ Double Spindle Rockford Drilling Machine.
1-22⁸ Libby Turret Lathe.
1-No. 3 Broaching Machine.
1-1/4⁸ Capacity Grant Riveter.
1-16⁸ Hendey Shaper.
1-Spindle Bosch Drilling Machine.
1-No. 4 Foster Turret Lathe.
1-21⁸ Swing Greenlee Turret Lathe.
2-30⁸ Vertical Boring Mills.
1-10⁸x72⁸ Norton Grinder.

Prices and description furnished on request. We offer the above machinery together with a number of manufacturing specialties with established markets. Will close this out at bargains on account of changing our line of manufacture.

The Will-Burt Company
ORRVILLE, OHIO

Good Used Tools

Sensitive Drills—Single & Multiple Spindle.
Upright Drills—20⁸, 24⁸ and 26⁸.
Radial Drills—2', 5' and 6'.
Cylinder Grinders—Norton, B. & S., Morse.
Surface Grinders—B. & S.
Lathes—14⁸ to 32⁸.
Millers—Vertical and Horizontal.
Planers—30⁸ and 36⁸.
Presses—Inclinable and Straight Side.
Shapers—16⁸ Steptoe and Queen City.
Screw Machines and Turret Lathes.

Stocker-Rumely-Wachs Co.
117 N. Jefferson St., **Chicago, Ill.**

NEW 3 PHASE MOTORS CHEAP. 3 H. P. \$57.50; 5 H. P. \$67.50

LATHES

- 12" x 5' Cleveland, geared head.
- 14" x 6' Carroll-Jamieson, new.
- 14" x 6' Hamilton, grd. hd., motor dr.
- 14" x 6' Monarch, quick change.
- 14" x 6' Von Wyck, quick change gear, taper attachment.
- 14" x 8' Sidney, double back geared.
- 16" x 6' Hamilton, style it.

TURRET LATHES and

- No. 4 Defiance hand screw machine.
- No. 4 Woods Tilted Turret, (2).
- 14" Milholland.
- 2x24 and 3x36 J. & L.

- 14" Niles, traveling head.
- 14" Steptoe, crank.
- 16" American, tool room.

SHAPERS

- 16" American b. g. crank.
- 16" O. & S. b. g. crank, new.
- 24" O. & S. back geared crank.

The Entire Plant of the Columbus Machine Company. Ask for List.

PRESSES

- No. 3-A Willard-A inclinable.
- No. 1 Toledo inclinable.
- Nos. 1½, 2, 2½ & 4 Robinson.

DRILLS and RADIALS

- 3" Cinti-Bickford, sgl. pul., gear box.
- 3½" Silver, sgl. pulley, gear box dr.
- 4" Universal Radial Drill Co. plain.
- Electric drills, Black & Decker.

MILLING MACHINES

- No. 1 Kempsmith universal.
- No. 2 Kempsmith universal.
- No. 2 Kempsmith plain.
- No. 25 Becker plain, power feed.
- No. 3 Kempsmith univ. and plain.

- Nos. 1 & 78 W. & M. surface.
- No. 2 W. & P. 10x30 universal.
- 6"x15" Fitchburg plain.
- 12x36 Cincinnati universal.
- 12x42" & 16"x30" Landis plain.
- 36" and 66" Yates plate.
- Perfection cylinder.

GRINDERS

- No. 60 Heald cylinder.
- Schmitt cylinder grinder.

- No. 3 Ohio universal & tool.
- No. 4 Gardner 20" double disc.
- No. 20 Bryant, chucking.

- Capital internal, new, 2"x2".

MISCELLANEOUS

- Band saw, metal, Klemm.
- Band saws, Napier 4"x4", 10"x10".
- Bending rolls, 7' for 8" plate.
- Boring mill, Colburn No. 3, tur. hd.
- Boring mill, 54" & 60" Colburn, 2 hds.
- Brake, 10', 18-gauge metal.
- Broaching machine, No. 1 LaPointe.
- Broaching machine, No. 3 LaPointe.
- Compressors, 6x6, 8x8 and 12x10.
- Drawing tables, adjust., 42"x6' top.
- Gear cutter, 26" No. 3 B. & S.
- Gear millers, Bilton No. 1, (5).
- Hammer, 40 lb. Bradley, helve.
- Hammer, 150 lb. Standard drop.

- Oil separator, Springfield.
- Pipe machines, 2", 4" & 6".

- Pumps, Gould triplex, 6x8" & 7x8".

- Punch & shear 4 by 2, 10" throat.

- Riveting hammers, type B, Nos. 2,

- 3, 4 & 5-A.

- Scale, 1500 lb. Toledo, dial type.

- Sceleroscope, Shore.

- Shear, No. 296 Robinson, 14 ga., 5'

- Shear, No. 362 Robinson.

- Shear, No. 20 Quickwork, 30" throat.

- Shear, circular, Pettingell 60".

- Tapping machine, Acme 6-spindle.

- Threading mch., W. & P. 2-spindle.

**THE
OSBORNE & SEXTON
MACHINERY COMPANY
COLUMBUS OHIO**

DEPT. H.

Classified Finding Index

Air Gages

Powell Co., Wm., Cincinnati.

Angle Plates

Germanow-Simon Mfg. Co., Rochester, N. Y.

Arbors, Solid

Nicholson & Co., W. H., Wilkes-Barre, Pa.

Auto-Gages For Dies

Danly Machine Specialties, Inc., 4913 Lincoln Ave., Chicago.

Aximatics

National Acme Company, Cleveland, O.

New Britain Machine Co., New Britain, Conn.

Balancing Ways

Anderson Bros. Mfg. Co., Rockford, Ill.

Bowsher Co., N. P., South Bend, Ind.

Balls, Bearing and Burnishing

Abbott Ball Co., Hartford, Conn.

Band Saw Machines, for Metal

Armstrong Blum Mfg. Co., 241 N. Francisco Ave., Chicago.

Furter-Cable Machine Co., Syracuse, N. Y.

Barrels, Tumbling

Abbott Ball Co., Hartford, Conn.

Scully Jones & Co., 2012 W. 13th, Chicago.

Belt Shifters

Artisan Mfg. Co., Cincinnati, O.

Beach Legs, Steel

New Britain Mfg. Co., New Britain, Conn.

Bending Machines, Hand and Power

Armstrong Blum Mfg. Co., 241 N. Francisco Ave., Chicago.

Handley & Whittemore Co., Beloit, Wis.

Lewthwaite Mfg. Co., T. H. 417E, Staten, N. Y.

Louis Hydraulics Co., Springfield, Ill.

Pedrick Tool & Machine Co., Philadelphia.

Bending Rolls

Handley & Whittemore Co., Beloit, Wis.

Bolt and Nut Machinery

Economy Engineering Co., Willoughby, O.

Foot-Burt Co., Cleveland, O.

Boring Bars

Pedrick Tool & Machine Co., Philadelphia.

Boring Bars, Cylinder

Pedrick Tool & Machine Co., Philadelphia.

Boring, Drilling & Milling Machines

Landis Tool Co., Waynesboro, Pa.

Boring Machines, Horizontal

Avery Drilling Machine Co., Cincinnati.

Pedrick Tool & Machine Co., Philadelphia.

Rockford Drilling Machine Co., Rockford, Ill.

Boring Tools

Maxwell Products Co., Cleveland, Ohio.

Boring and Turning Machines, Vertical

Cincinnati Planer Co., Cincinnati, Ohio.

Burnishing Equipment, Ball

Abbott Ball Co., Elmwood, Conn.

Case-Hardening Compound

Kasenit Company, 2 & 4 Stone St., New York.

Centers, Tailstock

Kell Manufacturing Co., Newark, N. J.

Chucking Machines

National Acme Company, Cleveland, O.

New Britain Mfg. Co., New Britain, Conn.

Springfield Machine Tool Co., Springfield, O.

Chucks, Collet

Ames Co., B. C., Waltham, Mass.

Hardinge Brothers, Inc., 1770 Beretton Ave., Chicago.

Chucks, Drill

Kantek Tube & Tool Co., Inc., 580 Johnson Ave., Brooklyn, N. Y.

Jacobs Mfg. Co., Hartford, Conn.

Scully-Jones & Co., 2012 W. 13th, Chicago.

Titan Tool Co., Erie, Pa.

Chucks, Drill and Tap

Scully-Jones & Co., 2012 W. 13th, Chicago.

Chucks, Keyway Cutting

Scully-Jones & Co., Ry. Exch. Bldg., Chicago.

Chucks, Magnetic

J. & H. Electric Co., Providence, R. I.

Clamps, Die

Danly Machine Specialties, Inc., 4913 Lincoln Ave., Chicago.

Clutches, Friction

Conway Clutch Co., Cincinnati, O.

Edgemont Machine Co., Dayton, O.

Cold Saws

Burke Machine Tool Co., Connaught, Ohio.

Collets

Ames Co., B. C., Waltham, Mass.

Hardinge Brothers, Inc., 1770 Beretton Ave., Chicago.

Contract Work Wanted

Burke Machine Tool Co., Connaught, O.

Counterbores and Spot Faces

Glenzer Co., J. C., Detroit, Mich.

Couplings, Friction Clutch

Conway Clutch Co., Cincinnati, O.

Cranes, Portable

Candy-Otto Mfg. Co., Chicago Heights, Ill.

Canton Foundry & Mfg. Co., Canton, Ohio.

Crank Pin Turning Machine

Pedrick Tool & Machine Co., Philadelphia.

Cutters, Keyseating

Davis Keyseater Co., Rochester, N. Y.

Scully-Jones & Co., 2012 W. 13th, Chicago.

Cutters, Milling

Genesee Mfg. Co., Rochester, N. Y.

Cylinder Boring Machines, Portable

Pedrick Tool & Machine Co., Philadelphia.

Demagnetizers

J. & H. Electric Co., Providence, R. I.

Dial Indicators

Federal Products Corp'n, Providence, R. I.

Die Heads, Threading, Self Opening

National Acme Company, Cleveland, O.

Die Sets

Danly Machine Specialties, Inc., 4913 Lincoln Ave., Chicago.

Drill Racks

Peerless Machine Co., Racine, Wis.

Classified Finding Index

Drilling Machine Heads, Multiple
United States Drill Head Co., Cincinnati

Drilling Machines, Bench

Ames Co., B. C., Waltham, Mass.
Avey Drilling Machine Co., Cincinnati
Burke Machine Tool Co., Conneaut, Ohio
Canedy-Otto Mfg. Co., Chicago Heights, Ill.
Rockford Drilling Machine Co., Rockford, Ill.
Sigourney Tool Co., Hartford, Conn.
Winterhoff Tool & Machine Co., Elkhart, Ind.
Taylor & Fenn Co., Hartford, Conn.

Drilling Machines, Horizontal

Rockford Drilling Machine Co., Rockford, Ill.

Drilling Machines, Multiple Spindle

Avey Drilling Machine Co., Cincinnati
Foot & Burt Co., Cleveland, O.
Rockford Drilling Machine Co., Rockford, Ill.
Sigourney Tool Co., Hartford, Conn.
Taylor & Fenn Co., Hartford, Conn.

Drilling Machines, Portable Electric
Independent Pneumatic Tool Co., 800 W.
Jackson Blvd., Chicago

Stow Flexible Shaft Co., Philadelphia, Pa.
Strand Co., N. A., 5001 N. Lincoln St., Chicago
Winterhoff Tool & Machine Co., Elkhart, Ind.
Wisconsin Electric Co., Racine, Wis.

Drilling Machines, Post

Canedy-Otto Mfg. Co., Chicago Heights, Ill.
Mueller Machine Tool Co., Cincinnati

Drilling Machines, Radial

Canedy-Otto Mfg. Co., Chicago Heights, Ill.
Mueller Machine Tool Co., Cincinnati
Taylor & Fenn Co., Hartford, Conn.

Drilling Machines, Sensitive

Avey Drilling Machine Co., Cincinnati
Burke Machine Tool Co., Conneaut, Ohio
Canedy-Otto Mfg. Co., Chicago Heights, Ill.
Foot & Burt Co., Cleveland, O.
Leland-Gifford Co., Worcester, Mass.
Muheimann, Adolph, Cincinnati, O.
Sigourney Tool Co., Hartford, Conn.
Taylor & Fenn Co., Hartford, Conn.
U. S. Machine Tool Co., Cincinnati, O.
Wisconsin Electric Co., Racine, Wis.

Drilling Machines, Vertical

Avey Drilling Machine Co., Cincinnati
Canedy-Otto Mfg. Co., Chicago Heights, Ill.
Foot & Burt Co., Cleveland, O.
Leland-Gifford Co., Worcester, Mass.
Rockford Drilling Machine Co., Rockford, Ill.
Sigourney Tool Co., Hartford, Conn.
Taylor & Fenn Co., Hartford, Conn.

Drills, Twist

Cleveland Twist Drill Co., Cleveland, O.

Dust Handling Equipment

Knickerbocker Co., Jackson, Mich.
Emery Wheel Dressers and Cutters
Precision Truing Machine & Tool Co., Cincinnati, O.
Taylor & Fenn Co., Hartford, Conn.
Western Tool & Mfg. Co., Springfield, O.

Feeders, Oil and Soda Water
New Britain Machine Co., New Britain, Conn.

Filing Machines, Die

Ames Co., B. C., Waltham, Mass.

Filing Room Equipment
Wardwell Mfg. Co., Cleveland, O.

Flexible Shafts

Strand Co., N. A., 5001 N. Lincoln St., Chicago

Forges

Canedy-Otto Mfg. Co., Chicago Heights, Ill.

Forgings, Hollow Bored

American Hollow Boring Co., Erie, Pa.

Furniture, Machine Shop

New Britain Machine Co., New Britain, Conn.

Western Tool & Mfg. Co., Springfield, O.

Gauges, Dial

Ames Co., B. C., Waltham, Mass.

Federal Products Corp'n, Providence, R. I.

Gauges, Piston and Piston Ring

Federal Products Corp'n, Providence, R. I.

Gauges, Thread

Federal Products Corp'n, Providence, R. I.

Gears

Boston Gear Works Sales Company, Norfolk

Dowm, Mass.

Grinding Machines, Belt

Gallmeyer & Livingston Co., Grand Rapids,

Mich.

Pearless Surfacing Machine Co., Troy, N. Y.

Walls Sales Corp., 94 Warren St., New York

Grinding Machines, Bench

Bodine Electric Co., 2256 W. Ohio St., Chicago

Ill.

Gallmeyer & Livingston Co., Grand Rapids,

Mich.

Jarecki Mehe. & T. Co., Grand Rapids, Mich.

Lands Tool Co., Waynesboro, Pa.

LeBlond Mch. Tool Co., R. K., Cincinnati, O.

Thompson Grinder Co., Springfield, Ohio

Wilmuth & Norman Co., Grand Rapids, Mich.

Grinding Machines, Cylindrical

Jarecki Mehe. & T. Co., Grand Rapids, Mich.

Lands Tool Co., Waynesboro, Pa.

Thompson Grinder Co., Springfield, Ohio

Wilmuth & Norman Co., Grand Rapids, Mich.

Grinding Machines, Die

Gallmeyer & Livingston Co., Grand Rapids,

Mich.

Jarecki Mehe. & T. Co., Grand Rapids, Mich.

Thompson Grinder Co., Springfield, Ohio

Wilmuth & Norman Co., Grand Rapids, Mich.

Grinding Machines, Disc

Gallmeyer & Livingston Co., Grand Rapids,

Mich.

Porter Cable Machine Co., Syracuse, N. Y.

Grinding Machines, Drill

Gallmeyer & Livingston Co., Grand Rapids,

Mich.

La Salle Tool Co., La Salle, Ill.

Wilmuth & Norman Co., Grand Rapids, Mich.

Grinding Machines, Face

Taylor & Fenn Co., Hartford, Conn.

Grinding Machines, Internal

Lands Tool Co., Waynesboro, Pa.

Taylor & Fenn Co., Hartford, Conn.

Thompson Grinder Co., Springfield, Ohio

Wilmuth & Norman Co., Grand Rapids, Mich.

Grinding Machines, Portable Electric

Bodine Electric Co., 2256 W. Ohio St., Chicago

Ill.

Independent Pneumatic Tool Co., 800 W.

Jackson Blvd., Chicago

Porter-Cable Machine Co., Syracuse, N. Y.

Service Tool, Die & Mfg. Co., 2256 Walnut

Street, Chicago

Stow Flexible Shaft Co., Philadelphia, Pa.

Strand Co., N. A., 5001 N. Lincoln St., Chicago

Wisconsin Electric Co., Racine, Wis.

Classified Finding Index

Grinding Machines, Snagging
Gallmeyer & Livingston Co., Grand Rapids,
Mich.

Jarski Mch. & T. Co., Grand Rapids, Mich.

Grinding Machines, Surface
Gallmeyer & Livingston Co., Grand Rapids,
Mich.

La Salle Tool Co., La Salle, Ill.
Thompson Grinder Co., Springfield, Ohio
Wilmart & Norman Co., Grand Rapids, Mich.

Grinding Machines, Tap
Gallmeyer & Livingston Co., Grand Rapids,
Mich.

Grinding Machines, Tool
Taylor & Fenn Co., Hartford, Conn.

Grinding Machines, Universal
Gallmeyer & Livingston Co., Grand Rapids,
Mich.

Landis Tool Co., Waynesboro, Pa.
Thompson Grinder Co., Springfield, Ohio
Wilmart & Norman Co., Grand Rapids, Mich.

Hack Saw Blades
Peerless Machine Co., Racine, Wis.

Hack Saw Machines
Armstrong Blum Mfg. Co., 341 N. Francisco
Av., Chicago
Peerless Machine Co., Racine, Wis.
Racine Tool & Machine Co., Racine, Wis.

Hammers, Air
Independent Pneumatic Tool Co., 600 W.
Jackson Blvd., Chicago

Hammers, Riveting
Independent Pneumatic Tool Co., 600 W.
Jackson Blvd., Chicago

Hoists
Ford Chain Block Co., Philadelphia, Pa.

Hoists, Portable
Canton Foundry & Machine Co., Canton, Ohio

Keyseating Machines
Burr & Son, John T., Brooklyn, N. Y.
Chattanooga Mch. Co., Chattanooga, Tenn.
Davis Keyseater Co., Rochester, N. Y.
National Machine Tool Co., Cincinnati

Lathe Accessories and Attachments
Cisco Machine Tool Co., Cincinnati, O.
Maxwell Products Co., Cleveland, Ohio.
Sidney Machine Tool Co., Sidney, O.

Lathe Turrets
Maxwell Products Co., Cleveland, Ohio.

Lathe, Automatic Turret
National Acme Company, Cleveland, O.

Lathe, Beach
Ames Co., R. C., Waltham, Mass.
Hardinge Brothers, Inc., 1770 Bertrand Ave.,
Chicago

Monarch Machine Tool Co., Sidney, O.

Lathe, Engine
Carroll Mch. Tool Co., A. V., Cincinnati, O.
Cincinnati Lathe & Tool Co., Cincinnati, O.
Cisco Machine Tool Co., Cincinnati, O.
Hardinge Brothers, Inc., 1770 Bertrand Ave.,
Chicago

LeBlond Mch. Tool Co., R. K., Cincinnati, O.
Monarch Machine Tool Co., Sidney, O.
Mueller Machine Tool Co., Cincinnati, O.
Porter-Cable Machine Co., Syracuse, N. Y.
Sidney Machine Tool Co., Sidney, O.

Springfield Machine Tool Co., Springfield, O.

Lathe, Extension Bed Gap
Rann-Larman Co., Cincinnati, O.

Lathes, Fox Monitor
Barker Co., Wm., Covington, Ky.

Lathes, Gap
Carroll Mch. Tool Co., A. V., Cincinnati, O.

Lathes, Short Bed
Artisan Mfg. Co., Cincinnati, O.
Monarch Machine Tool Co., Sidney, O.
Porter-Cable Machine Co., Syracuse, N. Y.
Sidney Machine Tool Co., Sidney, O.

Lathes, Turret
Monarch Machine Tool Co., Sidney, O.

Mandrels, Expanding
Nicholson & Co., W. H., Wilkes-Barre, Pa.
Western Tool & Mfg. Co., Springfield, O.

Mandrels, Solid
Nicholson & Co., W. H., Wilkes-Barre, Pa.

Milling Attachments
Burke Machine Tool Co., Conneaut, Ohio
LeBlond Mch. Tool Co., R. K., Cincinnati, O.
Porter-Cable Machine Co., Syracuse, N. Y.
Taylor & Fenn Co., Hartford, Conn.

Milling Machine Spacing Washers
Maxwell Products Co., Cleveland, Ohio.

Milling Machines, Bench
Ames Co., R. C., Waltham, Mass.
Burke Machine Tool Co., Conneaut, Ohio

Milling Machines, Hand
Burke Machine Tool Co., Conneaut, Ohio
Gallmeyer & Livingston Co., Grand Rapids,
Mich.

LeBlond Mch. Tool Co., R. K., Cincinnati, O.

Milling Machines, Portable
Pedrich Tool & Machine Co., Philadelphia

Milling Machines, Spline
Taylor & Fenn Co., Hartford, Conn.

Milling Machines, Universal
LeBlond Mch. Tool Co., R. K., Cincinnati, O.

Milling Machines, Vertical
Burke Machine Tool Co., Conneaut, Ohio
LeBlond Mch. Tool Co., R. K., Cincinnati, O.
Taylor & Fenn Co., Hartford, Conn.

Mills, Adjustable Hollow
Geneva Mfg. Co., Rochester, N. Y.

Motors, Electric
Reliance Electric & Eng. Co., Cleveland
Wisconsin Electric Co., Racine, Wis.

Nuts, Plain or Castellated
National Acme Company, Cleveland, O.

Oil Cups
Gits Bros. Mfg. Co., 1940 S. Kilburn Av.,
Chicago

Oil Extractors
Barrett Co., Leon J., Worcester, Mass.
Tolhurst Machine Works, Troy, N. Y.

Pattern Shop Machinery
Towsley Mfg. Co., John T., Cincinnati

Pins, Leader And Dowel
Danly Machine Specialties, Inc., 4913 Lincoln
Ave., Chicago

Classified Finding Index

Pipe Bending Machines
Pedrick Tool & Machine Co., Philadelphia

Pipe Cutting and Threading Machines
Chicago Pipe Thread Co., Racine, Wis.

Piston Machines
National Acme Company, Cleveland, O.

Piston Ring Machines
National Acme Company, Cleveland, O.

Planing Machines
Cincinnati Planer Co., Cincinnati, O.
Cleveland Planer Co., Cleveland, O.

Planers, Valve Seat, Portable
Pedrick Tool & Machine Co., Philadelphia

Polishing and Buffing Machines
Claco Machine Tool Co., Cincinnati, O.
Independent Pneumatic Tool Co., 600 W.
Jackson Blvd., Chicago
New Britain Machine Co., New Britain, Conn.
Wilmeth & Norman Co., Grand Rapids,
Wisconsin Electric Co., Racine, Wis. [Mich.]

Presses, Arbor
Atlas Press Co., Kalamazoo, Mich.
Lourie Hydraulic Co., Springfield, Ill.
Nicholson & Co., W. H., Wilkes-Barre, Pa.

Presses, Broaching
Lourie Hydraulic Co., Springfield, Ill.

Presses, Foot
Rockford Iron Works, Rockford, Ill.
Taylor & Fenn Co., Hartford, Conn.

Presses, Power
Hendley & Whitemore Co., Beloit, Wis.
Lourie Hydraulic Co., Springfield, Ill.
Rockford Iron Works, Rockford, Ill.

Presses, Punch
LaSalle Machine Works, 3013 S. LaSalle St.,
Chicago
Leuthwaite Mch. Co., T. H., 417 E. 31st, N.Y.
Lourie Hydraulic Co., Springfield, Ill.
Rockford Iron Works, Rockford, Ill.

Presses, Screw
Jarecki Mch. & T. Co., Grand Rapids, Mich.
Lourie Hydraulic Co., Springfield, Ill.
Towsley Mch. Co., John T., Cincinnati

Pulley Machinery
Avey Drilling Machine Co., Cincinnati

Pulleys, Iron, Solid and Split
Conway Clutch Co., Cincinnati, O.

Pumps, Lubricant
Rutherford Machinery Co., Cincinnati, O.

Punch Press Feeds
Rockford Iron Works, Rockford, Ill.

Punch, Shear and Bender, Hand
Armstrong Blum Mfg. Co., 341 N. Francisco
Ave., Chicago

Punches, Hand
Armstrong Blum Mfg. Co., 341 N. Francisco
Ave., Chicago
Hendley & Whitemore Co., Beloit, Wis.
Leuthwaite Mch. Co., T. H., 417 E. 31st St.,
New York
Whitney Metal Tool Co., Rockford, Ill.

Punches, Power
Hendley & Whitemore Co., Beloit, Wis.

Punches and Dies
Hendley & Whitemore Co., Beloit, Wis.
Leuthwaite Mch. Co., T. H., 417 E. 31st, N.Y.
Rockford Iron Works, Rockford, Ill.

Racks, Bar Stock
New Britain Machine Co., New Britain, Conn.
Yohé Supply Co., Wm. S., Canton, O.

Reamers
Cleveland Twist Drill Co., Cleveland, O.

Reamer Holders
Nicholson & Co., W. H., Wilkes-Barre, Pa.

Reels, Extension
Cincinnati Specialty Mfg. Co., Cincinnati, O.

Riveting Machines
Grant Mfg. & Mch. Co., Bridgeport, Conn.

Rod Cutters
Armstrong-Blum Mfg. Co., 341 N. Francisco
Av., Chicago
Hendley & Whitemore Co., Beloit, Wis.
Leuthwaite Mch. Co., T. H., 417 E. 31st, N.Y.

Saw Sharpening Machines
Wardwell Mfg. Co., Cleveland, O.

Scraping Machines, Hand & Pneumatic
Anderson Brothers Mfg. Co., Rockford, Ill.

Screw Driving Machines, Automatic
Reynolds Machine Co., Mansfield, Ohio

Screw Machine Products
National Acme Company, Cleveland, O.

Screw Machines, Automatic
National Acme Company, Cleveland, O.
New Britain Mch. Co., New Britain, Conn.

Screws
Economy Screw Corporation, 5213 Ravenswood Ave., Chicago
National Acme Company, Cleveland, O.

Second-Hand Machinery
Baker, J. C., Columbus, O.
Barker & Co., Wm., Covington, Ky.
Bath & Co., Cyril J., Cleveland, O.
Bennett Mch. Co., 50 Church St., New York
Botwinik Brothers, New Haven, Conn.
Brown Machinery Co., St. Louis, Mo.
Brownell Machinery Co., Providence, R. I.
Cincinnati Automatic Mch. Co., Cincinnati
Cincinnati Lathe & Tool Co., Cincinnati, O.
Cincinnati Machinery & Supply Co., Cincinnati, O.
Clark Machinery Co., Cleveland, O.
Clinton Mch. Co., 128 S. Clinton, Chicago
Co-Operative Machinery Co., Cleveland, O.
Donahue Steel Products Co., 204 N. Jefferson
St., Cincinnati, O.
Eastern Machinery Co., Cincinnati, O.
Empire Machinery Exchange Company, Inc.,
Cleveland, Ohio
Eskley Machinery Co., E. L., 555 Washington
Bld., Chicago
Fitzsimmons-Cole Mch. Co., Pittsburgh, Pa.
Foster Machinery Co., Cleveland, O.
Haetten & Co., J. E., Inc., 50 Church St.,
New York
Harris Bros. Co., 35th & Iron, Chicago
Hill, Clarke & Co., 649 W. Washington
Bld., Chicago
Hill, Clarke & Co., Inc., Boston, Mass.
Hyman & Sons, Joseph, Philadelphia
Industrial Plants Corporation, 25 Church St.,
New York
Johnson & Sons Machinery Co., Wm. C.,
St. Louis, Mo.
Jones Machine Tool Co., Cincinnati, O.
Kinsey Co., E. A., Cincinnati, O.
Lucas & Son, J. L., Inc., Bridgeport, Conn.
Little Co., W. P., Cleveland
McCabe Lathe & Machinery Corp., J. J.,
149 Broadway, New York
McGoy-Brandt Mch. Co., Pittsburgh, Pa.
McDonald Machinery Co., St. Louis

Classified Finding Index

- Second-Hand Machinery—Continued**
- Mcmullen Mchry. Co., Grand Rapids, Mich.
 Marr-Galbreath Mchry. Co., Pittsburgh, Pa.
 Marshall & Huschart Machinery Co., 17 S. Jefferson St., Chicago
 Midland Equipment Co., 612 W. Van Buren, Chicago
 MK-West Machine Tool & Supply Co., Davenport, Ia.
 Molitor Mchry. Co., Chas., 118 S. Clinton St., Chicago
 Morey and Co., Inc., 408 Broome St., N. Y.
 Morris Machine Tool Co., Cincinnati, O.
 Motch & Merryweather Machinery Company, Cleveland, O.
 Niles-Bement-Pond Co., 111 Broadway, N.Y.
 Norton-Broadway Mchry. Co., Cincinnati, O.
 O'Brien Machinery Co., Philadelphia, Pa.
 Oliver Chilled Plow Works, South Bend, Ind.
 Osborne & Sexton Mchry. Co., Columbus, O.
 Ovint & Co., D. C., Cleveland, O.
 Penfield Axle Co., Peru, Ind.
 Peninsular Machinery Co., Detroit, Mich.
 Queen City Machine Tool Co., Cincinnati, O.
 Reeve-Fritts Co., 37 S. Deplaines, Chicago
 Reliance Mchry. Sales Co., Pittsburgh, Pa.
 Russell Machine Co., Pittsburgh, Pa.
 Saltzman, H. L., 524 W. Van Buren Street, Chicago
 Service Shop Equipment Co., Cincinnati, O.
 Simmons Machine Tool Corp., Albany, N.Y.
 Smith Machinery Co., H. A., Syracuse, N.Y.
 Star Foundry Co., Albert Lea, Minn.
 Stocker-Rumely-Wach Co., 117 N. Jefferson St., Chicago
 Stoehr Mchry. Co., A. M., 844 N. Wells St., Chicago
 Strafer, A. F., 30 Church St., New York
 Strong, Carlisle & Hammond Co., Cleveland
 Syracuse Supply Co., Syracuse, N.Y.
 Tubor, Velick & Co., Inc., Lake & Deplaines Sts., Chicago
 Wertman, M. A., Cleveland, O.
 White Mchry. Co., A. D., 108 N. Jefferson St., Chicago
 Will-Burt Co., Orville, Ohio
 Winterer, Herman L., Philadelphia
- Shafts, Flexible**
 Stow Flexible Shaft Co., Philadelphia, Pa.
- Shafts, Steel**
 American Hollow Boring Co., Erie, Pa.
- Shaping Machines**
 Osborne & Sexton Mchry. Co., Columbus, O.
 Rhodes Mfg. Co., Hartford, Conn.
 Smith & Mills Co., Cincinnati
 Springfield Machine Tool Co., Springfield, O.
- Shears, Hand**
 Armstrong Blum Mfg. Co., 341 N. Francisco Av., Chicago
 Hendley & Whittemore Co., Beloit, Wis.
 Lewthwaite Machine Co., T. H., 417 E. 51st St., New York
 Whitney Metal Tool Co., Rockford, Ill.
- Shears, Power**
 Hendley & Whittemore Co., Beloit, Wis.
- Slotting Machines**
 Rhodes Mfg. Co., Hartford, Conn.
- Spacing Washers**
 Detroit Stamping Co., Detroit, Mich.
- Stools and Chairs, Factory**
 Chicago Wire Chair Co., 619 N. La Salle St., Chicago
- Straightening Machines**
 Springfield Machine Tool Co., Springfield, O.
 Fowsley Mfg. Co., John T., Cincinnati
 Whitney Metal Tool Co., Rockford, Ill.
- Tap Extractors**
 Walton Co., Hartford, Conn.
- Tapping Machines and Attachments**
 Alto Mfg. Co., 1647 Wolfram St., Chicago
 Avery Drilling Machine Co., Cincinnati
 Burke Machine Tool Co., Conesus, Ohio
 Eastern Tube & Tool Co., Inc., 880 Johnson Ave., Brooklyn, N.Y.
 Leland-Gifford Co., Worcester, Mass.
 Whitney Metal Tool Co., Rockford, Ill.
- Taps, Threading, Collapsing**
 National Acme Company, Cleveland, O.
- Thread Dials**
 Colvin, J. M., Yonkers, N.Y.
- Thread Milling Attachments**
 Cisco Machine Tool Co., Cincinnati, O.
- Threading Tools**
 Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago
 Hart Mfg. Co., Cleveland, O.
- Tool Holders**
 Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago
 Western Tool & Mfg. Co., Springfield, O.
- Tool Racks**
 Chicago Wire Chair Co., 619 N. La Salle St., Chicago
- Tools, Boring**
 Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago
- Tools, Lathe and Planer**
 Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago
- Tools, Machinists'**
 Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago
- Tools, Spot Facing**
 Genesee Mfg. Co., Rochester, N.Y.
- Travellers, I-Beam**
 Ford Chain Block Co., Philadelphia, Pa.
- Trucks, Machine Shop**
 New Britain Machine Co., New Britain, Conn.
 Townley Mfg. Co., John T., Cincinnati
- Turntables**
 Canton Foundry & Machine Co., Canton, O.
- Universal Joints**
 American Tool Works, Inc., Hartford, Conn.
 Borgeson Mfg. Co., Inc., Torrington, Conn.
 Boston Gear Works Sales Company, Norfolk
 Down, Mass.
- Valve Grinders**
 Independent Pneumatic Tool Co., 600 W. Jackson Blvd., Chicago
- Valves**
 Powell Co., Wm., Cincinnati
- Vises, Drilling Machine**
 Armstrong Blum Mfg. Co., 341 N. Francisco Av., Chicago
 Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago
 Germanow-Simon Mch. Co., Rochester, N.Y.
- Vises, Machinists'**
 New Britain Machine Co., New Britain, Conn.
 Western Tool & Mfg. Co., Springfield, O.
- Vises, Milling Machine**
 Germanow-Simon Mch. Co., Rochester, N.Y.
- Wood Working Machinery**
 Hendley & Whittemore Co., Beloit, Wis.
 New Britain Machine Co., New Britain, Conn.
 Porter-Cable Machine Co., Syracuse, N.Y.
 Townley Mfg. Co., John T., Cincinnati

Index of Advertisers

A

Abbott Ball Co.	32	Economy Engineering Co.	7
Aito Manufacturing Co.	46	Economy Screw Corporation	44
American Hollow Boring Co.	57	Edgemont Machine Co.	22
American Tool Works, Inc.	30	Empire Mchly. Exchange Co.	119
Ames Co., B. C.	60	Easley Machinery Co., E. L.	118
Anderson Bros. Mfg. Co.	78		
Armstrong-Blum Mfg. Co.	15		
Armstrong Bros. Tool Co.	17		
Artisan Manufacturing Co.	68		
Atlas Press Co.	10		
Avey Drilling Machine Co.			

B

Barbour, Love & Woodward	118		
Barker & Co., Wm.	108		
Barrett Co., Leon J.	26		
Bath & Co., Cyl J.	80-81		
Bennett Machinery Co.	89		
Bodine Electric Co.	34		
Borgeson Manufacturing Co.			
Boston Gear Works Sales Co.	31		
Botwinik Brothers	91		
Bowdier Co., N. P.	60		
Brown Machinery Co.	97		
Brownell Machinery Co.	82		
Buckeye Portable Tool Co.	66-67		
Burke Machine Tool Co.	56		
Burr & Son, John T.	24		

C

Canedy-Otto Mfg. Co.	51		
Canton Foundry & Mchne. Co.	42		
Carroll Machine Tool Co., A. V.	18		
Chattanooga Machinery Co.	25		
Chicago Pipethread Machine Co.	64		
Chicago Wire Chair Co.	30		
Cincinnati Automatic Mchne. Co.	100		
Cincinnati Bickford Tool Co.	94		
Cincinnati Lathe & Tool Co.	53		
Cincinnati Mchly. & Supply Co.	88		
Cincinnati Planer Co.	4		
Cincinnati Specialty Mfg. Co.	70		
Cisco Machine Tool Co.	40		
Clark Machinery Co.	84		
Cleveland Planer Co.	16		
Cleveland Twist Drill Co.	3		
Clinton Machinery Co.	81		
Colven, James M.	20		
Conway Clutch Co.	61		
Co-Operative Machinery Co.	110		

D

Danly Machine Specialties, Inc.	59		
Davis Keyseater Co.	27		
Detroit Stamping Co.	28		
Donahue Steel Products Co.	116		

E

Eastern Machinery Co.	102		
Eastern Tube & Tool Co., Inc.	44-47		

F

Federal Products Corporation	40		
Fitzsimmons & Cole Mchly. Co.	97		
Foote-Burt Co.	11		
Ford Chain Block Co.	43		
Foster Machinery Co.	79		

G

Gallmeyer & Livingston Co.	13		
Genesee Manufacturing Co.	29		
Germanow-Simon Machine Co.	52		
Gits Bros. Mfg. Co.	77		
Glenzer Co., J. C.	34		
Grant Mfg. & Machine Co.	58		

H

Haetten & Co., J. E., Inc.	92		
Hardinge Brothers, Inc.	18		
Harms Bros. Co.	109		
Hart Manufacturing Co.	57		
Hendley & Whittemore Co.	73		
Hill, Clarke & Co., Boston	90		
Hill, Clarke & Co., of Chicago	107		
Hoosier Universal Machinery Co.	96		
Hyman & Sons, Joseph	112		

I

Independent Pneumatic Tool Co.	55		
Industrial Plants Corporation	103		

J

J. & H. Electric Co., Inc.	34		
Jacobs Manufacturing Co.	66-67		
Jarecki Machine & Tool Co.	69		
Johnson & Sons Mchly. Co., Wm. C.	98		
Jones Machine Tool Co.	92		

K

Kasenit Company	58		
Kell Manufacturing Co.	20		
Kinsey Co., E. A.	106		
Klauber, Edward L.	86		
Knickerbocker Co.	65		

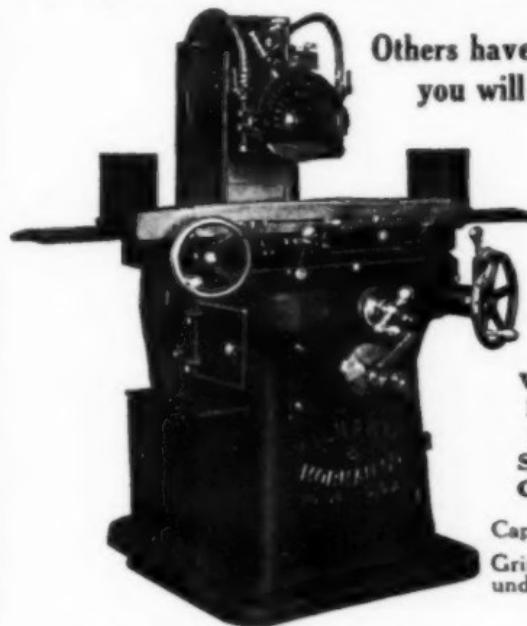
L

Landis Tool Co.	12		
LaSalle Machine Works	72		
LaSalle Tool Co.	39		
LeBlond Mchly. Tool Co., R. K.	5		

Index of Advertisers—Continued

Leland-Gifford Co.	63	Reliance Elect. & Engineering Co.	2
Lewthwaite Machine Co., T. H.	76	Rehance Machinery Sales Co.	91
Little Co., W. P.	95	Reynolds Machine Company	45
Louie Hydraulic Co.	68	Rhodes Manufacturing Co.	15
Lucas & Son, J. L., Inc.	79-96	Rockford Drilling Machine Co.	49
		Rockford Iron Works	72
		Russell Machine Co.	104
		Ruthman Machinery Co.	64
M			
McCabe Lathe & Machinery Corporation, J. J.	99		
McCoy-Brandt Machinery Co.	88	S	
McDonald Machinery Company	82	Saltzman, B. L.	86
McMullen Machinery Co.	96	Scully-Jones & Co.	28
Marr-Galbreath Machinery Co.	85	Second-Hand Machinery	79 to 123
Marshall & Huschart Mch'y. Co.	110	Service Shop Equipment Co.	88
Maxwell Products Co.	23	Service Tool, Die & Mfg. Co.	
Midland Equipment Co.	120	Sidney Machine Tool Co.	14
Mid-West Machine Tool & Supply Co.	106	Sigourney Tool Co.	48
Molitor Machinery Co., Chas.	83	Simmons Machine Tool Co.	117
Monarch Machine Tool Co.	53	Smith Machinery Co., H. A.	93
Morey and Co. Inc.	121	Smith & Mills Co.	14
Motch & Merryweather Mch'y. Co.	101	Springfield Machine Tool Co.	74
Muehlmann, Adolph	50	Star Foundry Co.	94
Mueller Machine Tool Co.	116	Stocker-Rumely-Wachs Co.	122
		Stoehr Machinery Co., A. M.	96
		Stow Flexible Shaft Co.	38
N			
National Acme Company	9	Strafer, A. F.	87-111
Nat'l Mch'y. Tool Builders' Ass'n	62	Strand & Co., N. A.	36
National Machine Tool Co.	24	Strong, Carlisle & Hammond Co.	95
New Britain Machine Co.	132	Surplus Material & Mch'y. Co.	87
Nicholson & Co., W. H.	71	Syracuse Supply Company	94
Niles-Bement-Pond Co.	105		
Norton-Broadway Mch'y. Co.	112		
		T	
O			
O'Brien Machinery Co.	93	Taylor & Fenn Co.	75
Oliver Chilled Plow Works	120	Thompson Grinder Co.	38
Osborne & Sexton Mch'y. Co.	123	Titan Tool Co.	48
Oviatt & Co., D. C.	98	Tolhurst Machine Works	26
		Towsley Mfg. Co., John T.	42
P			
Pedrick Tool & Machine Co.	19	Tubor, Velick & Co., Inc.	84
Peerless Machine Co.	74		
Peerless Surfacing Mch'e. Co., Inc.	33	U	
Penfield Axle Co.	113	United States Drill Head Co.	54
Peninsular Machinery Co.	90	United States Machine Tool Co.	55
Potter-Cable Machine Co.	32		
Powell Co., The Wm.	46	W	
Precision Truing Machine & Tool Company	35	Walls Sales Corporation	36
		Walton Co.	56
Q			
Queen City Machine Tool Co.	108	Wardwell Manufacturing Co.	41
		Wertman, M. A.	79
R			
Racine Tool & Machine Co.	77	Western Tool & Mfg. Co.	21
Rahn-Larmon Co.	6	White Machinery Co., A. D.	115
Reeve-Fritts Company	79	Whitney Metal Tool Co.	76
		Will-Burt Company	122
		Wilmarth & Norman Co.	131
		Winterer, Herman L.	89
		Winterhoff Tool & Machine Co.	50
		Wisconsin Electric Co.	37
		Woods Machine Co., S. A.	114
		Y	
		Yohe Supply Co., Wm. S.	22

"A perfect Surface Grinder"



Others have said it—
you will say it

W. & M.
No. 78
Super
Surface
Grinder

Cap. 8" x 22".
Grinds 11" high
under 10" x $\frac{3}{4}$ "
wheel.

YOU WILL find it a strong, rigid, precision surface grinder for tool work, and possessing ample power and rigidity for intensive and profitable production. All controls are conveniently located. Elevating hand wheel is graduated to 0.0005 inch.

We have a basic patent on the design and construction of the elevating screw. We absolutely guarantee the head against dropping or raising while the machine is in operation. While it is capable of taking extraordinarily heavy cuts, the grind is smooth and accurate.

Let us mail the illustrated circular and price.

Wilmarth & Morman Co.

Manufacturers of Precision Grinding Machinery Since 1900

1185 Monroe Ave., N. W., Grand Rapids, Mich.
We also manufacture Universal Grinders and the NEW YANKEE Drill Grinders



**Selling
"Service
That
Saves" in
Units of Factory Equipment**

No more profitable service can be rendered than that of conserving space as exemplified in the New Britain Tote Box Rack. Of light weight yet rigidly built, this rack inspires system and neatness as well as space saving, as surely as the white line on the highway keeps the driver to the right. Unlimited expansions and adaptations at moderate cost.

*Bulletin of complete line of "Service
that Saves" equipment—on request.*

The New Britain Machine Company

**"Shop Furniture
Originators"**



**New Britain,
Conn. U.S.A.**

